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COMPUTERWORLD

Win 95 no bundle of joy

By Jaikumar Vijayan

As the much-hyped Windows 95 operating system heads for what Microsoft Corp. insists is a firm Aug. 24 launch date, several PC makers are finding themselves between a rock and a hard place.

On one hand, Microsoft is pushing them to install the operating system as rapidly and on as many systems as possible. On the other hand, the vendors say they face an extremely reluctant corporate user base that demands they continue to install Windows 3.1 and Windows for Workgroups for some time.

Adding to these woes are constant reports that Windows 95 will not make its August ship date. The continuing uncertainty shrouding the release date is raising the worrisome prospect of a costly inventory pileup for many vendors, which are trying to clear their non-Windows 95 systems out of the channel in time for the release.

Microsoft issued a statement last week strongly denying reports of delays and insisted

Windows 95, *page 103*

It will be a slow road to Windows 95

That is the consensus from interviews with about 20 users, vendors, resellers and analysts during the past two weeks. Among the explanations are the following comments:

"We have gotten copies of it. We have installed it. I would say that we are going to roll it out pretty slowly until we are confident that it works well and that all software is running properly."

■ *Chad Pearce*
Vice president of systems
Godwins Booke & Dickenson, Philadelphia

"We are telling our vendors that we want [Windows] 3.1 for now. We are letting Windows 95 mature for a while. . . . Let someone else be on the bleeding edge if they want to."

■ *Marshall Fernholz*
Network control manager
American Medical Association, Chicago

Switch-hitters

Bay crashes through bandwidth limitations to multimedia apps

By Laura DiDio and Bob Wallace

In the wake of Independence Day fireworks, Bay Networks, Inc. will fire a fusillade of 100Base-T switching products in the next three weeks, sources close to the company said last week.

The product barrage should help users traverse the difficult path from legacy shared hubs and routers to emerging high-speed 100Base-T switching and 155M bit/sec. Asynchronous Transfer Mode backbone networks.

Such high-speed networks are expected to provide users with the boost in bandwidth necessary to support mixed traffic — voice, video and data — on the same network pipe. The additional bandwidth is also a requirement to handle the new class of client/server applications, such as multimedia and imaging, without degrading network performance.

Users and analysts familiar with the devices said they show that Bay, formed by the merger of SynOptics Communications, Inc. and Wellfleet Communications, Inc., has avoided the malaise and confusion that often follow a merger.

The announcements will include the following:

- A 100Base-T stackable hub.
- The 28104 switching hub.
- A dual 100Base-T interface for the backbone node high-

Bay, *page 16*

Cabletron powers up virtual nets by strengthening hub foundation

By Bob Wallace

Switching hub powerhouse Cabletron Systems, Inc. will introduce this fall a slate of products designed to bring the benefits of high-performance Asynchronous Transfer Mode switching to legacy LANs.

The SecureFast Virtual Networking product line will span Cabletron's entire switching hub line. It will form the foundation for the creation of virtual networks, which let network administrators easily create flexible

Cabletron, *page 14*

Laying the foundation

Cabletron readies products for fall introduction

Product	Function
SecureFast Virtual Networking Server	A hardware/software module for Cabletron's flagship MultiMedia Access Center-Plus (MMAC-Plus).
SecureFast Packet Switching	Runs on any Cabletron switch from the high-end MMAC-Plus to low-end MicroMMAC.
SecureFast Management	Gives users a graphical view of a switched internetwork. Will first run on Spectrum and later on OpenView, SunNet Manager and NetView.

Delta ejects Sybase as standard

Airline in test pattern with rival databases

By Kim S. Nash
ATLANTA

Sybase, Inc. is facing stormy skies at Delta Air Lines.

The $12.4 billion airline, one of Sybase's largest customers, has decided to replace Sybase's System 10 database with Informix Software, Inc. or Oracle Corp. products as its corporate standard, Delta officials confirmed last week.

However, this does not mean Delta will rip Sybase out of its systems. Once Delta selects a database standard, all new development projects — such as a customer marketing data warehouse containing more than 1T byte of data — will target that platform. The airline will gradually port existing Sybase applications to the new database if migration costs "make it worthwhile," officials said.

Inadequate customer support was one factor that prompted Delta to seek alternatives, said Don Boone Jr., director of architecture at TransQuest Information Solutions, a joint venture between Delta and AT&T Global Information Solutions formed to manage the airline's information systems (see story, page 103). Airline officials declined to provides specifics.

"Sybase doesn't meet [timely] vendor support requirements. They're no longer our standard," Boone said. "It's between Oracle and Informix right now."

Dave Peterschmidt, chief operating officer at Sybase, said Delta has not contacted Sybase

Delta, *page 103*

Looking for the right stuff

Delta hopes to push the limits of client/server technology, demanding a database that can support 40,000 to 70,000 connected devices worldwide such as printers and PCs. The product must also provide 24-hour, 7-day uptime and be able to support very large database applications of several hundred gigabytes or more.

Delta's dawn

Delta has developed five strict acceptance criteria for any database it plans to buy. Total cost of ownership – initial license fees plus ongoing maintenance – accounts for fully 50% of the decision. Four other measures are weighted equally:

- **Ability to provide excellent customer support**
- **Features and functionality**
- **Financial stability of vendor**
- **Feel-good factors, such as response to requests and access to many customer references**

Newspaper

ARE YOUR MOBILE USERS HAVING A PROBLEM WITH BATTERY LIFE?

intel inside
pentium
PROCESSOR

July 3, 1995

What's Inside

A PUBLICATION OF IDG

Cataclysmic client/server

■ Managing product support in a multivendor, client/server world shouldn't be this tough. But it is. IS managers turn referee and coach to keep the players working together.
See In Depth, page 77.

■ Meanwhile, IS managers trying to get SAP savvy, such as Packaging Corporation of America's Frank Monteleone, must overcome major management issues. Finding good help to install it is hell; and once SAP is in place, life will never be the same.
See Management, page 68.

SANDRO MILLER

■ **Prodea announces a PC-based tool** for accessing relational databases — without forcing users to struggle through complicated SQL commands. NEWS, *page 6*

■ Trying to push the **Unix version of CICS** beyond a small number of early adopters, **IBM switched to user-based pricing** and introduced a faster release with new relational database and systems management support. NEWS, *page 10*

■ **Silicon Graphics** tries to find a niche on Wall Street with 3-D visual graphics systems. NEWS, *page 12*

■ **Tivoli Systems announces that its Applications Management Strategy** (AMS) specification will be based on the Desktop Management Interface standard. Eight major application and development tool vendors last week said they will support AMS. NEWS, *page 14*

■ By exchanging a hefty $500 million for the rights to Frame Technology, **Adobe Systems** seeks to cement its position as a major player in desktop software and keep clear of giant Microsoft. COMPUTER INDUSTRY, *page 32*

■ **Unix users are demanding, and getting, better ways to integrate their applications** with Windows documents and E-mail. DESKTOP COMPUTING, *page 41*

■ In a continuing effort to become a network services provider, **Banyan begins shipping its unbundled Universal StreetTalk** and announces that four new developers, including Sybase, will write applications for it. At the same time, **Banyan spins off Vines management** capabilities to other network environments. WORKGROUP COMPUTING, *page 49*

■ **Bell Atlantic Directory Services** makes dramatic customer service gains thanks to some decidedly less than dramatic information technologies such as imaging. WORKGROUP COMPUTING, *page 50*

■ Congress is poised to approve **sweeping deregulation of the telecommunications industry**, which could result in lower prices and increased availability of new technologies. ENTERPRISE NETWORKING, *page 55*

■ **Marine Terminals sets up redundant linked HP 3000 systems** in San Francisco and Long Beach, Calif., for disaster protection of its tracking of ships, cargo containers and trucks. LARGE SYSTEMS, *page 64*

■ **Next ships an upgrade** to a key piece of its object-oriented development environment. APPLICATION DEVELOPMENT, *page 65*

■ Corporate IS developers should remember to account for anomalies, such as twins, unusual names and leap years, or face the wrath of angry consumers, **Mitch Betts** says. APPLICATION DEVELOPMENT, *page 66*

■ For all the efforts at innovation and marketing, **sales of handheld computers still seem puny**. However, some user companies are cashing in on the technology. CW GUIDE, *page 73*

■ There are **jobs to spare** in the software industry, especially at the desktop level. CAREERS, *page 83*

■ **Initial PDA costs are steep**, but the outlay doesn't stop there. Software, training and ongoing communications fees are just a few of the extras you'll pay for. MARKETPLACE, *page 92*

■ PDAs are still a solution looking for a problem, **Bill Laberis** maintains. EDITORIAL, *page 36*

■ **David Peyton** says Washington needs to update tax and finance laws to get ready for digital cash. VIEWPOINT, *page 37*

■ **Michael Schrage** explores the organizational impact when every employee puts up a Web home page. VIEWPOINT, *page 37*

■ **Charles Babcock** says warnings on PC data backup echo in the wake of tragedy. COMMENTARY, *page 104*

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How to contact Computerworld ..... *Page 104*

Executive Briefing

Client/server implementation is usually painful, but there are success stories. **Elf Atochem**, for one, is about to turn on its **SAP R/3** system — after a year of growing its own talent — on time and on budget. **Fireman's Fund** has watched its computing costs shrink by nearly $45 million in five years after going client/server in 1989. *Pages 2 and 61.* Meanwhile, **StorageTek** adapts mainframe products to meet users' client/server storage needs, and **scalable, enterprisewide** client/server systems get a leg up from middleware. *Pages 4 and 65*

Lotus' Notes directory has some holes in it, but so do all the others. Lotus announces an object-oriented language for Notes. *Pages 12 and 20.* Users can **trade their Lotus applications for Windows 3.1** for free copies of Windows 95 packages. *Page 41*

In wireless and mobile computing this week: **Batteries must change** to keep up with users' demands; **ARDIS** lowers usage prices for its wireless network. *Page 44*

Tandem plans to unveil an architecture on July 17 targeted at data warehouse applications, and users are discovering that **data mining** has its own set of hazards, among them a steep learning curve. *Pages 6 and 28*

Lockheed Martin Missile and Space delays its decision whether to switch from Macintoshes to Windows 95 PCs as Macintosh end users fight for their machine. Meanwhile, IBM could become the **biggest Macintosh clone** manufacturer. *Page 4*

IBM hangs on to its lead in AS/400 storage, even as it fights to keep up with its competitors on the mainframe front. And **AS/400 customers** say they are looking forward to RISC machines despite delays. *Pages 6 and 61*

On the Internet: Microsoft cries foul over the Justice Department's collecting evidence against the bundling of The Microsoft Network with Windows 95; **Netscape** is about to go public; and **Choice Hotels** puts up a Web site that links into its worldwide reservations system. *Pages 2, 24 and 60*

Hewlett-Packard and Optical Data Systems extend switching to the desktop; Compaq includes **Cisco routing software** in new servers; **Network General** sniffs at PCs and notebooks; and **Cisco** beefs up its ATM support. *Pages 8, 14, 16 and 56*

The 5th Wave *by* Rich Tennant

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*The VeriTest Cross-Country v2.0 test simulates typical executive use of Microsoft Office® applications in Microsoft Windows® v3.11 during an airplane flight. Power management was enabled and 8MB of RAM was installed. VeriTest, inc. is located in Santa Monica, CA. †For a complete copy of our Limited Warranties, please write to Dell USA L.P., 2214 W. Braker Lane, Bldg. 3, Austin, TX 78758. Prices and specifications valid in the U.S. only and subject to change without notice. Pentium and the Pentium processor logo are registered trademarks of Intel Corporation. ©1995 Dell Computer Corporation. All rights reserved.

Microsoft says enough is enough

Software giant charges harassment, observers cite fears DOJ probe could delay Windows 95 ship

By Mitch Betts

The Department of Justice's rush demand for more boxes of documents about The Microsoft Network last week prompted a frazzled Microsoft Corp. to fight back and accuse the agency of harassment.

The squabble may be settled out of court, but legal analysts said the eleventh-hour quest for "smoking gun" documents shows the government still does not have a solid antitrust case assembled.

Pushed to the breaking point by a series of intensive government investigations, Microsoft last week filed a petition asking a federal judge in New York to quash the latest subpoena, which demanded that a broad array of documents from The Microsoft Network be delivered within two days.

The Justice Department is now probing complaints by on-line service providers, such as America Online, Inc., that bundling The Microsoft Network client software with Microsoft's Windows 95 will give the company an unfair distribution advantage [CW, May 29].

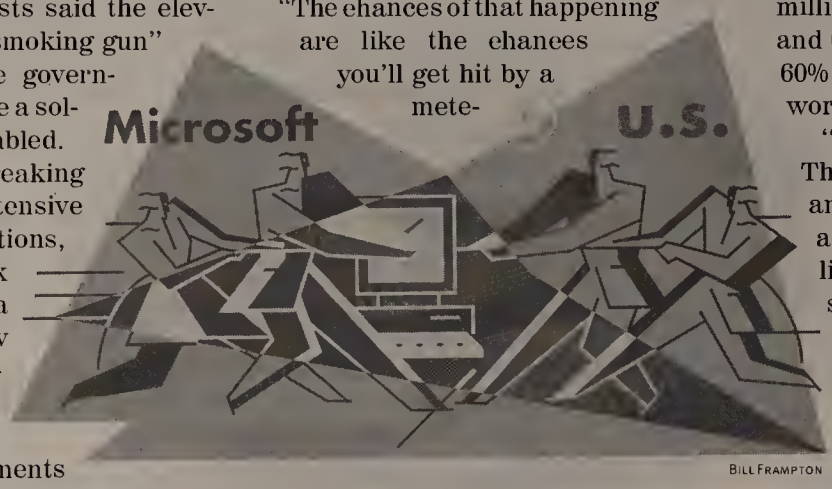
Government game plan

Observers said the government hopes to collect enough evidence for a court injunction that either blocks the release of Windows 95, scheduled for Aug. 24, or forces Microsoft to strip The Microsoft Network access from it.

For example, the department asked for the last possible date Microsoft could alter Windows 95 and release it on time.

But persuading a judge to interfere with a product debut, which ostensibly would expand customer choices, is very unlikely, said Joe Sims, an antitrust attorney at Jones, Day, Reavis & Pogue in Washington.

"The chances of that happening are like the chances you'll get hit by a meteorite," said Joseph Kattan, an antitrust lawyer at Morgan, Lewis & Bockius in Washington. "The Justice Department doesn't have a legal leg to stand on. How can Microsoft have a monopoly in something where they have zero sales?"



BILL FRAMPTON

Steven A. Newborn, an antitrust expert at Rogers & Wells in Washington, disagreed. "If you can reasonably foresee the [anticompetitive] effect of a new product ... the government would be remiss not to take action," he said.

One attorney, who requested anonymity, said that even inside the Justice Department, some attorneys find the case groundless.

Microsoft argued that subscribing to The Microsoft Network is a separate transaction, so it does not have a guaranteed market. But the Justice Department contacted Atlanta-based Pipeline Communications, Inc., which specializes in on-line registrations, and found that 60% of users who get electronic offers for on-line services actually sign up.

If predictions that Microsoft will sell 30 million copies of Windows 95 this year and 60 million in 1996 come true, then a 60% sign-up rate for The Microsoft Network would overwhelm on-line rivals.

"But even if everybody signs up [for The Microsoft Network], why is that an antitrust problem? I can see where it's a marketing problem for America Online ... but where I come from, that sounds like competition," Sims said.

Microsoft's legal complaint said the latest subpoena and timetable were "extremely unreasonable," overbroad and part of a "campaign of harassment."

The Justice Department called the dispute a "tempest in a teapot" because talks were under way to reduce the burdens.

Everything but the kitchen sink

In its investigation of Windows 95 and The Microsoft Network, the Justice Department demanded documents from Microsoft related to the following topics:

- **The Microsoft Network pricing structure and advertising, data center and overhead costs.**
- **Projections of The Microsoft Network subscriber growth, revenue and break-even point.**
- **The Microsoft Network content-provider contracts.**
- **Projections of how The Microsoft Network would grow "with and without its inclusion in Windows 95."**
- **Developer access to software code-named Blackbird.**
- **Windows 95's Registration Wizard, Tune-Up, OEM Pre-Installation Kit and Internet browser.**
- **Deals with Tele-Communications, Inc. and the NBC TV network.**

Corrections

Due to a data collection error in the *Best Places to Work* supplement published the week of June 19, the figure listed for information systems hires in 1994 for Sears, Roebuck and Co. was incorrect. The correct figure is 100.

Because of a reporting error, the amount of Ramac disk array capacity shipped by IBM was incorrectly stated in a June 19 story in the Large Systems section ["Price drop may follow Ramac 2 array"]. The correct amount was 350T bytes.

The telephone number for Bull HN Information Systems, Inc. in the June 19 CW Guide to PC Servers was incorrect. The correct telephone number is (800) 233-2855.

Homegrown SAP team leads R/3 overhaul

By Julia King

A 70-person project team at Elf Atochem North America, Inc. this week will flip the switch on a new enterprise R/3 software system from SAP America, Inc.

What makes the project remarkable is that the $1.7 billion chemical manufacturer groomed its internal cadre of SAP specialists, retraining 30 former mainframe and midrange programmers. For the past 12 months, these Elf Atochem information systems staffers have worked side by side with seven SAP specialists from Integrated Systems Solutions Corp., an implementation partner on the $50 million-plus project.

"That is incredibly unique," said Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston. Also unique is the company's implementation of the R/3 software on IBM's new multiprocessor SP/2 Unix platform. Remarkably, even with the implementation and homegrown talent, the project was completed in just one year.

"It's stunning," Richardson said. "It's like cutting over to a new kitchen over a weekend."

"It's definitely pretty unusual because you can get into a vicious cycle of playing around with SAP implementation options," said Frank Monteleone, who was involved in an R/3 implementation at Nutrasweet Corp. prior to becoming director of technology at Packaging Corp. of America in Evanston, Ill.

All aboard

Approximately 125 users at Elf Atochem's $200 million organic peroxides business unit will go live with the integrated R/3 system this week. The company's 150-person IS organization will bring up 12 other business units in the next two years.

Give credit where it's due

Extensive training and precise planning of virtually every painstaking detail help explain the project's quick turnaround time, according to Robert M. Rubin, vice president of information services at Elf Atochem.

For example, in addition to six weeks of formal training at SAP's headquarters in Philadelphia, several team members, including data center staffers and systems programmers, went through Unix training. Programmers who report directly to business process team managers also received training in ABAP4, SAP's proprietary programming language.

Throughout the project, team members had access to a special SAP laboratory setup on the 28th floor of Elf Atochem's corporate headquarters.

Robert M. Rubin, vice president of information services at Elf Atochem: *Extensive training and precise planning led to quick implementation*

But some unanticipated setbacks did occur, such as the discovery of certain incompatibilities between the company's legacy systems and the SAP software.

"One of the things we found out as we learned more about SAP data structures is that our legacy systems did not support the amount of data elements SAP required," said Ben Vettese, SAP implementation manager. "So a lot of manual data scrubbing was required. We had to plug in a lot of information manually."

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Standardization choice put off

Lockheed delays decision on whether to scrap the Mac for Windows 95

By Lisa Picarille

Agitated Macintosh users last week elaimed at least a temporary victory in thcir battle to keep the Macintosh as an option at Lockheed Martin Missile and Space.

Aecording to a handful of users, the aerospaee giant put off plans to standardize on a single platform for a year. The users cited pressure from the company's huge contingent of Macintosh users, a pitch from Apple Computer, Inc. and skepticism about Mierosoft Corp.'s fortheoming Windows 95.

While Lockheed officials confirmed they have "put off [making] the decision for another year," they declined to comment on the faetors that led to the decision.

The following is an excerpt from "Apple Star," the newsletter for the Lockheed Employees Apple User Group:

"The study has no really new content from others that have been put forward and is not going to revolutionize [Lockheed Martin Missile and Space]. However it will cause a revolution if adopted. The claim is that it would be cheaper, ease the maintenance burden, conform to industry standards and make it easier to share information, as if the root of all our problems are hardware- and standard-related."

– Mike Bailey, former president and founder of Lockheed's Apple user group

Contemplating a move

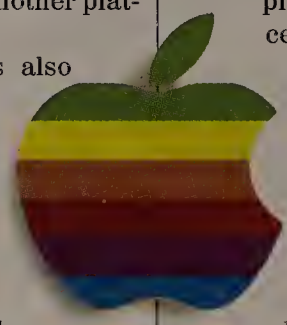
Last month, Lockheed officials confirmed that the Sunnyvale, Calif., company, as part of its ongoing effort to eut costs and reassert control over its more than 15,000 desktop systems, was considering a formal proposal to phase out its more than 9,100 Macintoshes. The company would instead adopt systems based on Intel Corp.'s Pentium ehip running Mierosoft's as-yet-unshipped Windows 95. Lockheed has more than 6,500 PCs [CW, May 22].

However, sources at Lockheed said the company's large contingent of avid Macintosh users rolled into aetion, with some users publiely expressing dissatisfaction and others working channels sueh as eorporate electronic mail and "Apple Star," the newsletter for the Lockheed Employees Apple User Group.

"The solution is not for the company to become dictatorial and say that everyone must use PenWin95, but to explore inclusive solutions," said an article by Mike Bailey, a former president and founder of the Lockheed user group, in the newsletter's June issue. PenWin95 is how Loekheed refers to Pentium-based systems running Windows 95.

"Cooler heads prevailed," said one delighted Macintosh user at Lockheed. "The powers that be looked at more than just the immediate dollar and cents savings. The whole thing really is a war, and management better have their ducks lined up if they are going to force people to jump to another platform."

User sources also claim Lockheed delayed its standardization decision because Windows 95, which is due out in August (see story, page 1), has yet to prove itself as a superior alternative to Mae OS.



Fighting back

Apple, which has taken a lot of heat during the past several years for losing big aecounts, also weighed in, pleading its ease to Lockheed decision-makers earlier this month. Because Loekheed is among Apple's Top 10 customers, Apple went so far as to outline its future hardware and operating systems strategy, according to Hilda Carpenter-Green, Apple's district manager for Northern California.

The company also pressed the Maeintosh's long-touted advantages, including increased productivity, redueed eost of ownership as well as less frequent need to replace systems.

But while Apple may have won this battle, the war isn't over yet.

Management "told Apple [that] unless there is a eompelling reason, they won't stay with Apple," said a Loekheed Maeintosh user briefed on the outcome of Apple's meeting.

Cutting back

Lockheed Martin in Bethesda, Md., will eliminate 1,400 information systems jobs in the next three to five years as part of a corporatewide restructuring announeed last week.

According to a eompany spokeswoman, the cuts will be made "all across the country" and will not be limited to aerospace facilities the company is closing in East Windsor, N.J., and Valley Forge, Pa.

Earlier this year, Joseph R. Cleveland, president of Enterprise Information Systems Co., the company's IS arm in Orlando, Fla., said the $23 billion aerospaee giant would also cut internal IS costs by $700 million in the next five years.

Lockheed Martin currently employs 5,600 IS workers.

—Julia King

IBM may build Macintosh clones

By Lisa Picarille

■ IBM and Apple Computer, Inc. are currently engaged in talks that could make IBM a Macintosh clone maker.

At last month's PC Expo in New York, IBM said it plans to deliver its Common Hardware Reference Platform (CHRP) systems in the second half of next year, and it will license MacOS to run on these systems, according to Riehard Thoman, IBM Personal Systems division general manager. No agreement has been signed, however.

More heated discussions are taking place over the possibility of IBM licensing a ported version of Apple's System 7.5 operating system to run on its pre-CHRP PowerPC systems.

High costs

Aecording to sources close to both eompanies, IBM is balking at Apple's reportedly hefty licensing fees. It is also undecided on whether to preload MacOS or make it an optional operating system so it will not ruffle the feathers of its own OS/2 group.

Also, signing the licensing agreement would effectively mean that IBM would create a Power Macintosh clone. This would boost Apple's clone strategy and possibly put MacOS into business markets that have eluded the Cupertino, Calif., company to date.

IBM may not make such inroads into traditional Macintosh strongholds, however.

"There would have to be a truly competitive advantage for educational users to purchase a Power Macintosh from IBM," said Jean Feigenbaum, director of marketing at the University of California at Santa Barbara, which has more than 10,000 Macintoshes and eonsiderably fewer PCs. "For users, it would be a matter of value, price and economics."

StorageTek unveils tape library, drive

By Steve Moore

Counterpunching IBM's move to adapt high-performance mainframe storage technology to meet users' client/server needs, Storage Teehnology Corp. in Louisville, Colo., last week rolled out an automated tape library and tape cartridge.

The 9710 automated tape library provides tape storage capaeities of up to 1.4T bytes, while the 4890 tape drive ean store up to 2.4G bytes of data per cartridge.

When StorageTek's new high-end tape drives beeome available to OEMs later this year, they will compete with IBM's 3590 and Magstar tape drive and its 3590 High-Performanee Tape Subsystem, analysts said. The IBM products were announced in April [CW, April 10], and all are slated to be available by the end of the year. Both vendors' wares are aimed initially at the large enterprise client/server computing environments.

Users applauded the availability of mainframe-strength client/server storage systems.

Beat 'em to the punch

"StorageTek would have had a really hot product if they delivered it two years ago" before IBM was under way with Magstar, said Mark Friedman, a principal at Demand Technology, Ine., a Naples, Fla., researeh and consulting firm. But by the time StorageTek's produets hit the market, they will faee immediate competition from IBM, he said.

Friedman said a primary advantage of both IBM's and StorageTek's products is that "they do not record with the head in eontaet with the media" and therefore do not suffer from media wear problems inherent in other tape technologies.

Users applauded the availability of mainframe-strength client/server storage systems. While reduced media wear is a big advantage of the IBM and StorageTek offerings, "the ability to eliminate manual interaetion is also key," said Larry Lemay, a network engineer at Computer Language Researeh, a Dallas-based corporate tax processing firm.

"We may have 50 tapes in a single tape set, so an autoloader doesn't do us any good," Lemay said. Autoloaders typically handle sets of only nine to 12 tapes, and "if an operator has to come and load other tapes, what good is the autoloader?" he asked.

IBM's Magstar Model B1A is available for $43,500, while StorageTek's Twin Peaks 4890 costs $20,000.

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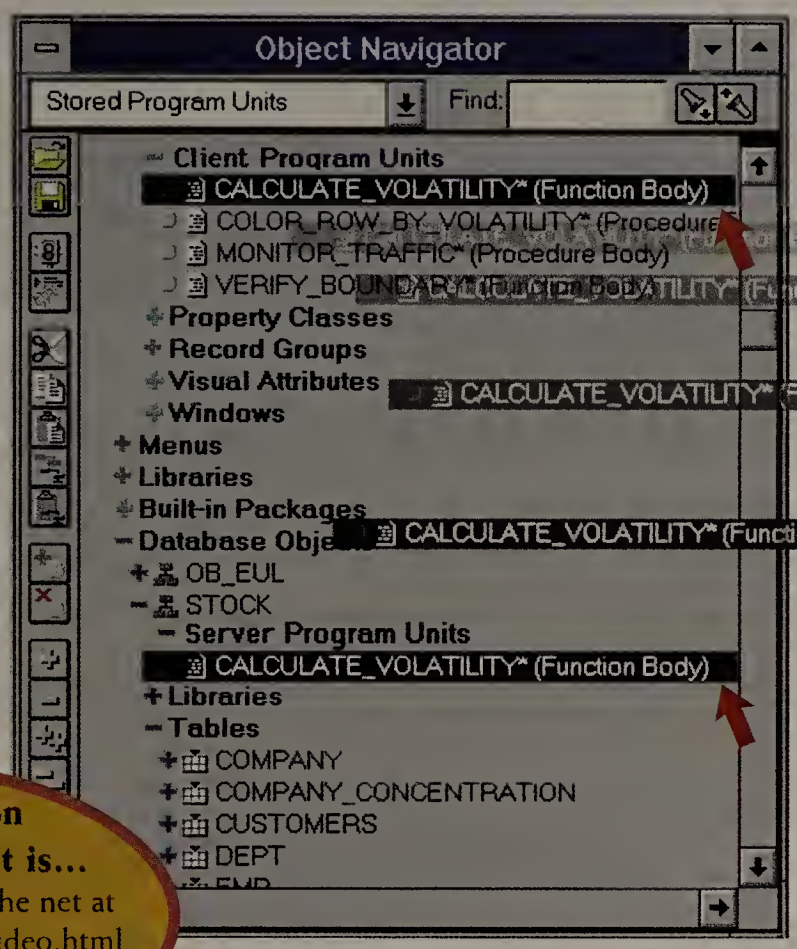

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Tandem server plan includes routers

By Jean S. Bozman and Michael Goldberg

Tandem Computers, Inc. plans to unveil on July 17 a computer architecture designed to make its servers more powerful for data warehousing and other enterprisewide applications.

Called ServerNet, the architecture uses 300M byte/sec. router hardware and software to move data among computers, communications controllers and peripherals more quickly than it can with Tandem's current setup. "It doesn't require CPU intervention," said Gary Smaby, president of Smaby Group, Inc. in Minneapolis.

Officials from the Cupertino, Calif.-based company said they will use ServerNet in their upgraded servers and offer licenses to other vendors to use the technology.

The announcement will not include the release of any new products, although analysts said they expect to see the first rollouts of low-end Integrity servers in about six months and new high-end Himalaya models next year.

The United Services Automobile Association, an insurer in San Antonio, recently installed two Tandem Himalayas for data warehouse applications. Mark Sosa, a claims systems development manager, said ServerNet could help, especially as data queries grow more complex. "Inquiries into that warehouse for decision support generate a lot of I/O," he said. "So any way we can expedite it would be good."

Tandem is trying to push its next-generation machines into retailing, multimedia and other applications that require access to large amounts of data. Tandem faces competitors such as Silicon Graphics, Inc., which plans to field a 64-bit Challenge series of Unix servers next year [CW, June 26], and massively parallel processing makers AT&T Global Information Solutions and NCube, analysts said.

Tandem's announcement positions it "for video server, data warehouse, telephone customer service, electronic commerce and Internet applications ... whatever has high bandwidth requirements," said George Weiss, an analyst at Gartner Group, Inc. in Stamford, Conn.

ServerNet focuses on moving data around the computer as the data is stored and written on disk drives. The architecture "changes the internal mechanisms by which different components talk to each other," said Chuck Buffum, Tandem's director and general manager of decision-support solutions.

In Tandem

SERVERNET

ANNOUNCEMENT DATE: **JULY 17**

EXPECTED INSTALLATION IN HIMALAYA SERVERS: **1996**

AGGREGATE THROUGHPUT: **UP TO 400T BYTE/SEC.**

DATA CONNECTION BANDWIDTH: **UP TO 150T BYTE/SEC.**

Savings ahead?

Users may see substantial savings once ServerNet becomes available, said Jeffrey Collins, technical product manager at GTE Information Services Corp. in Tampa, Fla., which uses an eight-CPU Himalaya system to monitor cellular phone calls in North America for fraud.

"There's a definite advantage not only in I/O, but it also deereases the cost of having to support a production machine" by tuning I/O performance automatically, Collins said.

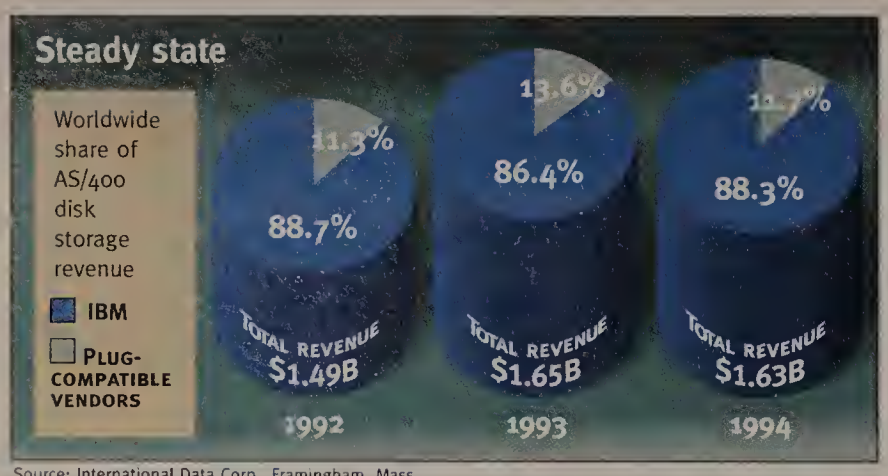
IBM basks in AS/400 disk glow

By Craig Stedman

When it comes to disk storage, AS/400 shops are still feeling Blue.

IBM lost its dominant position in the mainframe disk market during the past five years and is now fighting just to stay ahead of upstart rival EMC Corp. in big-iron storage shipments. But on the AS/400 side of the street, EMC and other plug-compatible disk vendors continue to eat IBM's dust, analysts said.

IBM's share of AS/400 disk revenue remains close to 90% and shows no sign of slipping, according to industry observers (see chart). Several AS/400 customers said IBM has caught up to competing vendors on technology and is getting closer on pricing, making plug-compatible purchases less compelling.



Source: International Data Corp., Framingham, Mass.

The reliability of IBM's AS/400 drives has been solid right along, "but they weren't always the hottest disks in town," said Marc Cohn, senior vice president of information systems at Enterprise Rent A Car Co. in St. Louis. "Now there's not a feature or a performance issue that I think they have to take a second place on."

Enterprise used drives from IPL Systems, Inc. in the past, and it brought in EMC arrays late last year for in-house testing. But its disk farm today consists of a single crop, Cohn said. "It would take some extraordinary advantages to convince us to buy from somebody other than IBM," he added. "They have a standup product plus the ability to support it better than anybody else."

"IBM is doing a heck of a job compared to where they were two or three years ago," said Rick Colbert, manager of client support at Manheim Auctions, a car auctioning company in Atlanta. "Their equipment is more up to par technology-wise, and they can probably go head-to-head with EMC," he said.

Manheim's AS/400 disk storage is split about equally between IBM and EMC devices, according to Colbert. Despite the technical parity, however, Manheim still leans toward EMC because the Hopkinton, Mass., vendor is willing to swap its drives for smaller installed IBM disks at essentially no cost, he added. "We can't turn that down," Colbert said.

In a recent survey of 232 AS/400 sites, 81% listed IBM as their preferred disk vendor, according to Reliability Ratings, Inc., a consulting firm in Needham, Mass. Of those who preferred IBM, 40% said they are less inclined to buy from other vendors than they were a year ago, while only 13% are more inclined to do so. The remaining 47% said their positions on third-party suppliers had not changed.

Competitors "can no longer undercut IBM the way they used to, and they don't have a clear technical advantage either," said Kevin Beam, director of research at Reliability.

Step ahead

Beam and other analysts said IBM was fast to market with both 4G-byte disk drives and RAID technology for protecting data. It has also kept plug-compatible vendors at bay by introducing internal storage for the AS/400 and changing the system's I/O processors whenever it ships new disks.

The I/O processor alterations mean rivals "are always at least a half step behind IBM" in exploiting new disk technology, said Robert Callery, an analyst at International Data Corp. in Framingham, Mass. Other vendors still have not come out with knockoffs of IBM's internal storage offering, which became available a year ago and is "a big inhibitor" to competition, Callery added.

& **AS/400 users** get a RISC-y path from IBM. See page 61.

PC tool agents ease database access

By Kim S. Nash

PC-based query and reporting tools are not a dime a dozen, but every month users see another such product arrive.

Still, Prodea Software Corp., a small consulting-turned-software firm in Eden Prairie, Minn., brought something different to the table when it announced ProdeaBeacon last week, users said.

Not only does the product disguise the complicated SQL commands required for talking to relational databases, but ProdeaBeacon includes programmable agents designed to further simplify the process. The software is targeted at data warehousing users.

ProdeaBeacon

Platforms supported	Windows NT and Windows 3.1*
Databases supported	DB2, SQL Server, Oracle7, Red Brick, Sybase System 10 and others via Open Database Connectivity links
Pricing	Starts at $45,000 for 10-user license

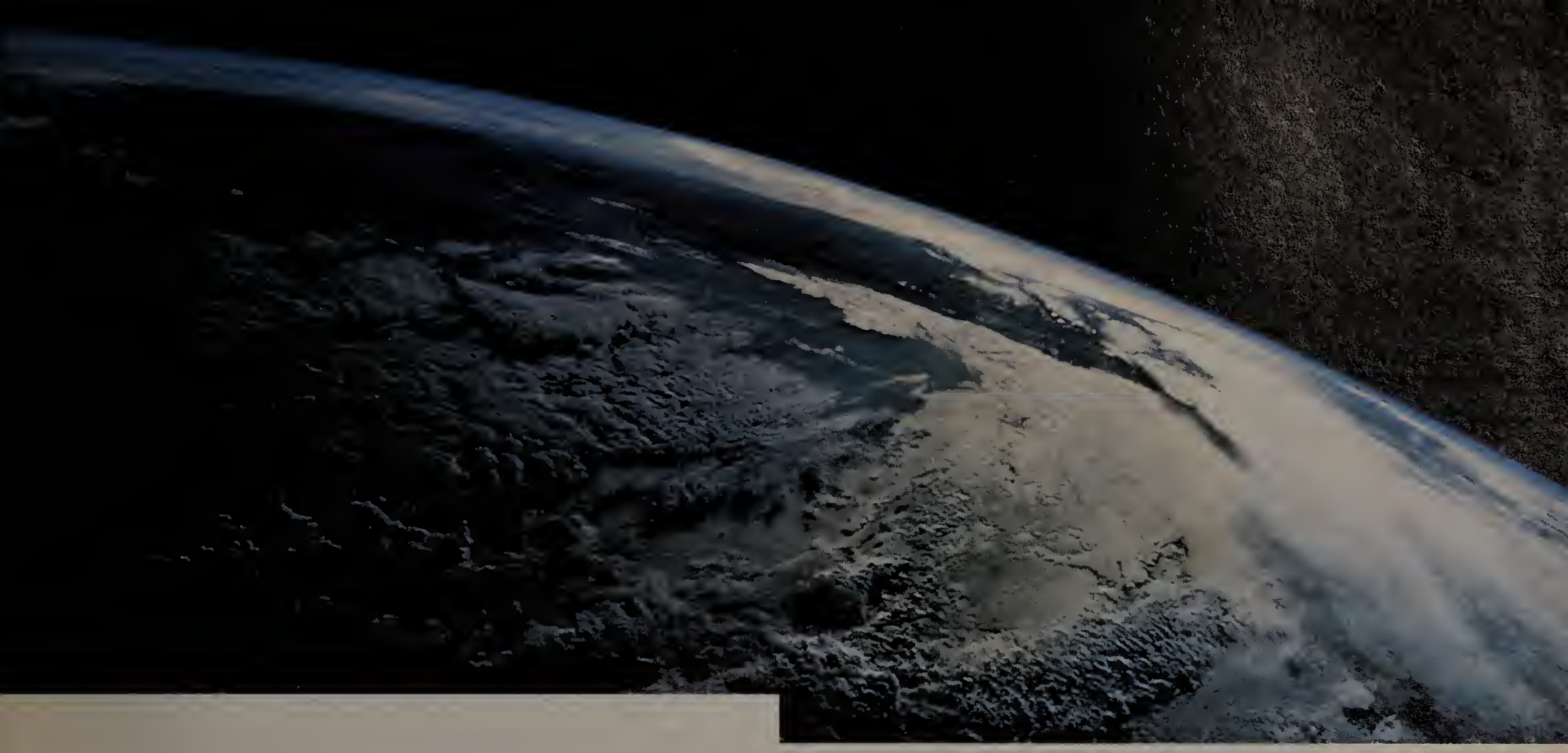
*Windows 95 and Windows NT 3.51 planned for September

"This is powerful stuff — more than the tons of other PC tools we evaluated," said Tim Miller, a sales technology coordinator at Kimberly Clark Corp., a large consumer products company in Neenah, Wis.

ProdeaBeacon consists of two pieces. Beacon Client is a set of PC-based end-user reporting tools that users can point and click to create reports that cull data off relational databases such as IBM's DB2 or Oracle Corp.'s Oracle7 (see chart). Beacon Application Server sits between Beacon Client and a given database and uses programmable software agents to fetch specific corporate information.

Agents are miniature programs that can run at predefined times or be preprogrammed to be kicked off by events. Such agents could cut down "significantly" on the time it takes Kimberly Clark's information systems department to create standard reports for the sales force, Miller said.

"A lot of that could be point and click instead of coding," Miller said.



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WE ASKED: Does IBM's acquisition of Lotus spell good news or bad news for users of Lotus products, particularly Notes? [CW, June 19]

YOU SAID:

With Notes firmly planted in the Windows world and IBM concentrating on Notes as a primary reason for purchasing Lotus, what is the future of OS/2? Will it die a slow, quiet death? Or will IBM "force" Lotus into producing a Notes version under the 32-bit OS/2? If the latter is the choice, will IBM's 32-bit database engines provide the muscle behind the Notes?

■ **John Tilmon**
President
MapleStar Computing Corp.
Batavia, Ill.

Overall, I expect the biggest challenge to be a reconciliation of two very different corporate cultures.

■ **Bob Lein**
Independent consultant

I was somewhat disappointed with the OS/2 version of SmartSuite (slow, and missing Organizer) but am hopeful for the one coming later this year. My dream environment is NotesSuite on OS/2 Warp Connect networked throughout my house, to my home office and on my laptop on the road.

■ **Roger Rohweder**
CARL Corp.

It is about time IBM realized that it can't do software the way other vendors can do software. I think this is the type of organization that we need in the software industry. It will be interesting to see how Microsoft and Novell handle the next few months.

Questions [for IBM]: When will the consumers of various Lotus products, such as CC:Mail, hear from Lotus/IBM about what to expect in the future? Does IBM plan to acquire anyone else in the immediate future?

■ **Craig Brunson**
University of Kentucky

Cheaper, mobile Sniffer aids flexible management

By Patrick Dryden
MENLO PARK, CALIF.

When networks and client/server applications act sick, a common and expensive prescription calls for dispatching a technician for hands-on diagnosis with a Sniffer.

The protocol analyzer is so popular its name has become the generic term for devices that extract and unscramble the bits streaming through networks. Next week, Network General Corp. will try to improve this process by introducing a cheaper, stand-alone version of the pervasive analysis software.

Multiple troubleshooters will be able to run a program called Off-Net Sniffer on a desktop or portable PC. There they can display, decode and analyze a data file captured from a suspect network by the normal Sniffer unit, officials said last week.

Off-Net Sniffer costs $4,995 per user and ships next week. It can decode over 200 LAN and application protocols and examine data from the Sniffer trace file format.

"We gained a lot more management flexibility," said beta tester Tom Luce, supervisor of office systems integration at Fisons Pharmaceutical Corp. in Rochester, N.Y.

The stand-alone analysis software let Luce's three Sniffers sample 24 networks continuously.

"I could train my staff on live data without tying up the Sniffers, and those units can keep watching for problems while staff in each department decode on their regular PCs," Luce said. He has even run diagnostics on a notebook computer at home and on the road.

"When a problem isn't urgent, customers could send us Sniffer samples so we wouldn't have to go on-site to help diagnose complex problems," said Roosevelt Giles, president of Information Management Systems, Inc., an Atlanta-based corporate network integrator and trainer. "And our students could work on cheap PCs instead of expensive Sniffers."

Price barrier?

Sniffer is a valuable but expensive tool, so making its software available separately could help cut costs and spread diagnostic capabilities among the technical staff, said Paul Edmunds, senior information systems analyst at Duke Power Co. in Charlotte, N.C.

However, Edmunds would prefer to see Network General better integrate its protocol analyzers with enterprise network management platforms than add separate new consoles.

At this week's Special Olympics, *a bar-code label attached to each athlete's ID badge will be the key to quickly unlocking electronic medical records in an emergency*

Is there a doctor on the net?

The 7,200 athletes who participate in this week's Special Olympics World Games in New Haven, Conn., will have a support network of electronic medical records to make sure they get the right care if they get sick or injured.

The participating children and adults with mental retardation come from 141 different countries and speak 50 languages, so paper records would have been impractical, according to Kathryn McKiernan, manager of client services in the information systems department at Yale-New Haven Hospital.

A bar code attached to each athlete's identification badge is the key to quickly unlocking the medical records in an emergency, especially when the athletes might be unable to provide critical information. "Some athletes may not speak English. Some may have trouble communicating due to a speech-related deficiency," McKiernan explained.

The database was built with Microsoft Corp.'s Access running on Windows for Workgroups. McKiernan said data entry was handled by 16 computer-savvy nurses, to make sure the medical information is accurate. "Besides, they can read doctors' handwriting," she said.

The system will be donated for use in future Special Olympics. —*Mitch Betts*

News Shorts

Compaq exec takes heat

The simmering battle between **Compaq Computer Corp.** and **Packard Bell Electronics** took an ugly turn last week. A remark by Compaq senior vice president Ross Cooley at an informal cocktail session at PC Expo led to vociferous charges of racism from Packard Bell last week. At the heart of the matter: an alleged remark by Cooley — later reported by the Associated Press — construed as derogatory to Mexican-Americans and Asian-Americans. By late last week, at least two California-based Mexican-American groups were calling for apologies from Compaq and a boycott of its products. Cooley, who claimed Packard Bell was using race to divert attention from its business practices, nevertheless apologized to "any ethnic group that has been offended."

Prodigy offers Web pages

Prodigy subscribers joined the World-Wide Web craze last week under a new service option that lets them create individual Web pages. The service, Personal Web Pages, transparently converts documents to Hypertext Markup Language format, Prodigy said. Soon, subscribers will be able to add graphics and sound files to their Web pages.

Motorola eyes new network

Motorola, Inc. last week announced an agreement with **Personal Communications Systems Development Corp.** (PCSD) to develop an advanced voice and data paging network. Motorola plans to build a beta system in a major metropolitan area, and PCSD plans to deploy the network nationally by mid-1996.

AT&T inks printing deal

AT&T Corp. is allying itself with leading printing equipment and graphics software companies to add to its Network Printing Demand Service, which is currently in trials. The service will let users distribute and print documents using AT&T's network.

SHORT TAKES **Computer Associates International, Inc.** has extended its $1.8 billion tender offer for **Legent Corp.** from July 6 to July 11 due to the Department of Justice's antitrust investigation of the proposed acquisition.... **IBM** and **TelePort Corp.** in Englewood, Ohio, announced plans to build and market life-size videoconferencing suites linked over the IBM Global Network. The service will be available in the fourth quarter.

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IBM adopts user-based pricing for CICS

By Craig Stedman

IBM last week switched to user-based pricing on the Unix version of its CICS transaction processing software in a belated attempt to make start-up costs easier for customers to swallow.

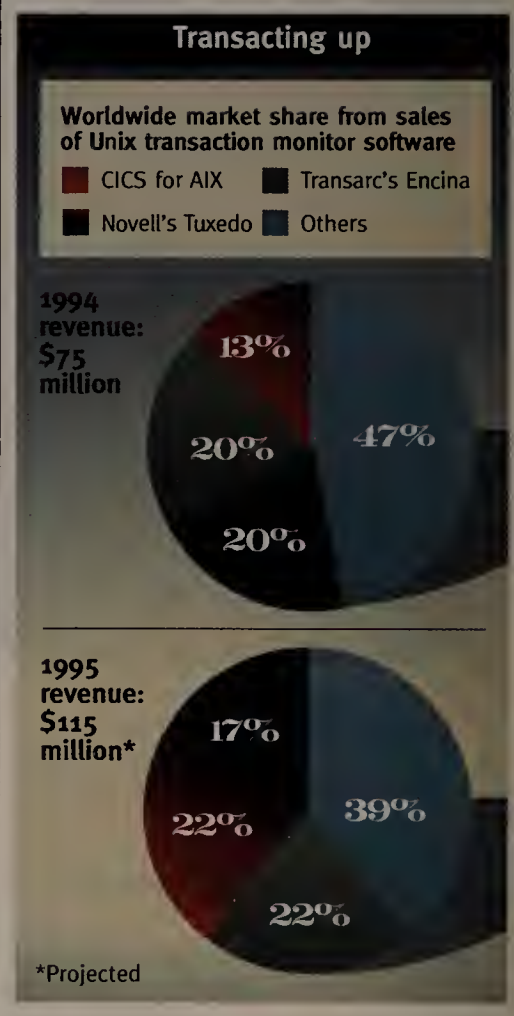
IBM inserted a single base charge of $3,500, down from a sliding scale that started at $12,000 and went up according to system size. Per-user charges ranging from $335 for one user to $14,250 for 50 users were also added. At the same time, IBM introduced a faster release of CICS for AIX with new relational database and systems management support.

The changes may qualify as the boot needed to finally propel CICS for AIX beyond the handful of early adopters that have put the software into production, observers said. AIX is IBM's Unix derivative that runs on its RS/6000 and SP2 systems.

"This gets IBM to the point where they can go back [to users] and say they have a credible product," said Rich Evans, an analyst at Meta Group, Inc. in Stamford, Conn. CICS for AIX "certainly has not taken the market by storm," he said.

IBM claims to have sold almost 1,000 licenses since introducing CICS for AIX two years ago, but the number of production users still appears to be in the single digits, Evans said. Performance and systems management have been weak spots, and the original CICS for AIX pricing "was just too outrageous," he added.

Triad Systems Corp., a software vendor in Livermore, Calif., chose Groupe Bull's CICS-compatible UniKix transaction monitor over CICS for AIX 18 months ago for its throughput and pricing. CICS uses a layered architecture, "and by the time communications were passed between all the different levels, performance was a real problem," said Jay deFrance, a project manager at Triad.



IBM is trying to resolve those issues with CICS for AIX 2.1 and a companion CICS Systems Manager product, which are due to ship in the fourth quarter.

CICS for AIX 2.1 should run about 20% faster than the previous release, said Geoff Sharman, distributed on-line transaction processing strategy manager at IBM. Part of that increase comes from letting users load VSAM flat files from their mainframes into IBM's DB2 for AIX database rather than the VSAM emulator they had to use before, he said. The emulator has been a big bottleneck in CICS for AIX, according to early users.

While user-based pricing will lower entry costs on CICS for AIX, potential customers said they are worried about its impact as installations grow. "My instincts tell me this would drive up our costs," said a manager at a large insurance firm in the Midwest considering CICS for AIX in a 4,000-user application.

"You can pay quite a bit of money if you have a lot of users," Sharman acknowledged. "We'll take it on a case-by-case basis as that comes up."

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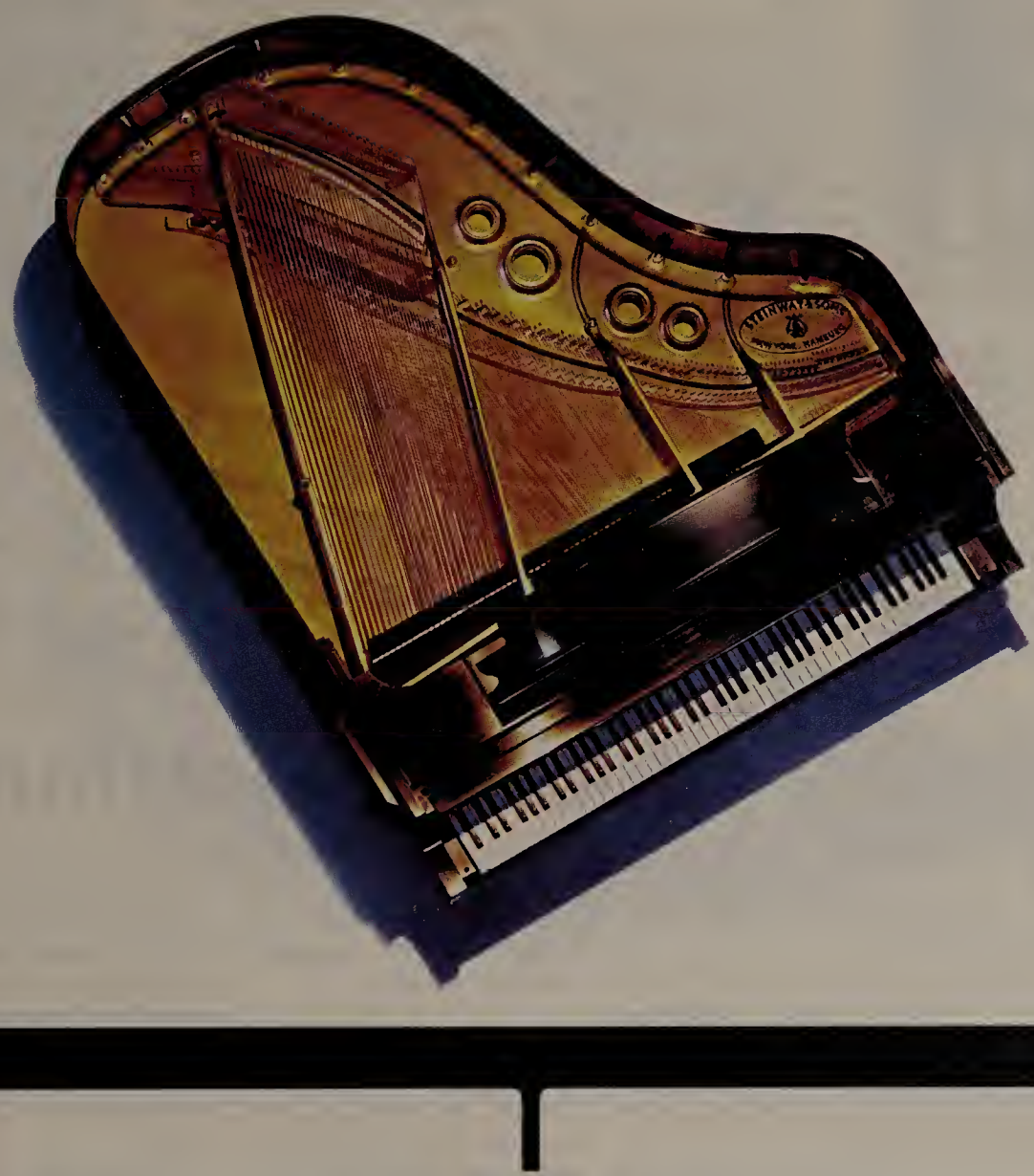

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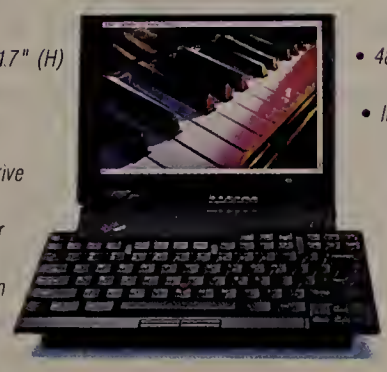

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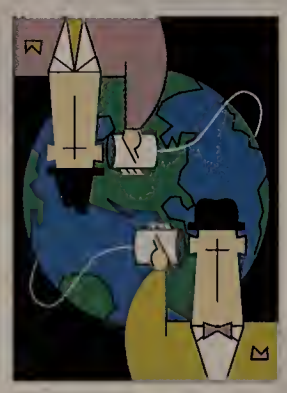
IBM®

Lotus will offer X.500 synchronization

Company seeks strategy to make Notes directory X.500-compliant as well

By Suruchi Mohan

Lotus Development Corp. will provide synchronization with X.500 directories by year's end, but the Cambridge, Mass., company is still trying to formulate a strategy to make the Notes directory X.500-compliant.



So far, none of the vendors of LAN-based electronic-mail systems offers X.500 compliance.

Synchronization means the directories update one another. X.500 compliance means they use the X.500 protocols.

Doug Savary, staff director at Nynex Engineering Systems in Marlboro, Mass., said he wants Notes directories to be X.500-compliant. Lotus Messaging Switch (LMS) and X.500 "will let me talk to an X.500 database but doesn't let me update Lotus Notes with X.500. I would like to see Notes integrated with a common directory," he said.

As LAN-based systems span the enterprise, directory maintenance becomes key. Lotus recommends that customers deploy LMS to handle that. LMS translates and routes messages from different systems, acting as a corporate backbone. It also provides directory synchronization among Notes and other messaging systems, such as IBM's Professional Office System (Profs) and Microsoft Corp.'s Mail. By year's end, it will let Notes directories synchronize with X.500 directories via LMS.

The Notes directory is a simple name and address book. It uses the X.509 security protocol and the naming structure of X.500, but it does not support the X.500 protocols.

Notes also does not automate administration, said John Vasily, database administrator at Babson College in Babson Park, Mass. Currently, network administrators must make deletions, adds and changes manually.

And despite synchronization, users will still have to maintain separate directories for the LAN operating system and Notes. Lotus' strength lies in its ability to divorce itself from the operating system, offering up Notes as an application service.

"The negative is that the user might be required to support and operate two different directories — one for the operating system and the other for messaging/groupware," said Gary Rowe, principal of Rapport Communication in Middletown, Ohio.

Two steps

Further, Lotus does not provide synchronization between Notes and Novell, Inc.'s NetWare Directory Services (NDS). For example, NDS is the primary directory for AT&T Corp.'s Network Notes. Users get into the network using NDS, then need a separate Notes identification to access the applications, said David Marshak, vice president of Patricia Seybold Group in Boston.

David Goodman, a senior consultant at Lotus in Wayne, Pa., said the company is working toward synchronizing Notes and NDS, although a single log-in may pose a security hazard.

The security of single sign-on may be debatable, but Novell and Microsoft both seek to capitalize on this feature. Novell promises close integration between GroupWise and NDS, while Microsoft offers easy setup by letting Windows NT administrators populate the Exchange directory when they set up a user. Notes administrators cannot do this.

IP on top

Novell offers a good, robust directory, but it is tied to NetWare. This is not good because many companies now use IP, said David Marshak, vice president of Patricia Seybold Group.

"I don't know if integration with the network directory is critical," said Larry Goering, team leader for groupware at Monsanto Co., a chemical company in St. Louis. "I could see some advantages," he said, but noted that for now, maintaining two directories is not a big enough headache for him to want to tie himself to one network operating system — NetWare or Windows NT.

When Novell and Microsoft go beyond their operating systems onto other platforms, they will be in the same situation as Lotus, Marshak said. "In the best of situations, we are comparing incomplete solutions," he said. No company really offers a perfect solution, he added.

Users of Lotus Windows 3.1 applications can get free Windows 95 versions. See page 41.

Microsoft Mail's message agent ported to NT

By Suruchi Mohan

Microsoft Corp. last week announced the availability of Microsoft Mail Server 3.5, an upgrade to its current 3.2A version.

The most significant feature of this maintenance release is its Message Transfer Agent (MTA), which will now be available on Windows NT. The MTA previously could run only on OS/2.

This is good news for Tim Dawes, information services manager at London Life in London, Ontario. "We were using OS/2 and finding it unreliable; it would lock up the machine."

Dawes said he always ran the MTA on a different machine than the Microsoft Mail post office because he did not want the server to lock up. With Version 3.5, the MTA and post office can run on the same NT server, which means less administration.

This release will offer users several administrative utilities designed to synchronize the main directory with the personal address book. One such utility is called PabCheck.

But according to Dawes, PabCheck only checks and identifies differences between the personal and main directories; users must make changes themselves. While more sophisticated users can do this, he said, the average user will find it hard.

The upgrade is available immediately. Pricing starts at $269.

SGI makes visual finance play

Firm sets its sights on Wall Street

By Thomas Hoffman
NEW YORK

Bored with Hollywood schmoozefests, Silicon Graphics, Inc. is after power brokers in another locale: Wall Street.

Last week, the Mountain View, Calif.-based workstation vendor made a big splash here at the Securities Industry Association Information Management Conference by introducing its Silicon Exchange initiative, an integrated set of graphical hardware and software systems.

SGI hopes to tap the emerging middle office environment for new business in the financial sector. Its Mountain View neighbor and rival, Sun Microsystems, Inc., already has the lion's share of the trading floor workstation and server market.

Silicon Graphics has targeted global risk management and trading floor operations as potential beachheads, said Duncan Campbell, SGI's emerging markets manager.

Riding 'The Ramp'

The New York Stock Exchange, for example, has just begun developing a prototype system using SGI Exchange hardware and software to create a three-dimensional view of its operations control center, which is known as "The Ramp."

"This [system] will tell us if a piece of [trading floor] equipment is experiencing a problem and whether a stock is affected by that problem," said Anne Allen, vice president of trading floor operations at the exchange.

Historically, the exchange has used a bevy of terminals to oversee its trading floor operations, a setup that is "getting very complicated to operate," said Allen. She said she expects the visual prototype to enter testing by August.

David Wu, a financial analyst at S. G. Warburg & Co. in New York, said he also sees a potential market for high-performance systems that can collate financial market data and help firms manage risk more effectively.

Oracle support

SGI announced last week that its Challenge Unix servers will support Oracle Corp.'s Oracle7 Parallel Server clustering software when the Oracle7.2 database ships this month.

"All the big trading houses that have big exposures to futures, derivatives and other transactions would find this very useful," said Wu, who attended a NYSE/SGI demonstration here last week.

Demand is there

Another early Silicon Exchange shop is J. P. Morgan Securities, Inc. in New York. Morgan has developed an SGI-based mortgage system designed to provide its traders, salespeople and researchers with a graphical view of the mortgage market.

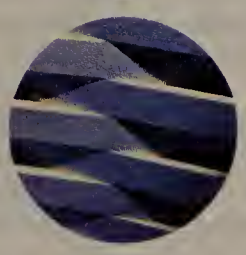
Paul Wanuga, a fixed-income research associate for the investment bank that developed the system six months ago, said the demand for such visualization systems is just beginning to emerge.

"Ninety-eight percent of the people I talk to [at J. P. Morgan] say this stuff is terrific — they just don't know how to apply it right now," Wanuga said.

That is just one of the challenges SGI faces as it tries to capture a share of Wall Street's highly coveted technology dollars. At present, vendors that provide real-time market data feeds to brokerages — such as Reuters America, Inc., Dow Jones Telerate, Inc. and Teknekron Software Systems, Inc. — do not run on SGI's hardware platforms, a situation SGI is trying to change, Campbell said.

Unix users demand — and get — better Windows integration. See page 41.

"When my server overheats,
well, I've been known to show my temper."

IBM Solution #92683-O  **a.k.a. "Unique Cooling Design"**

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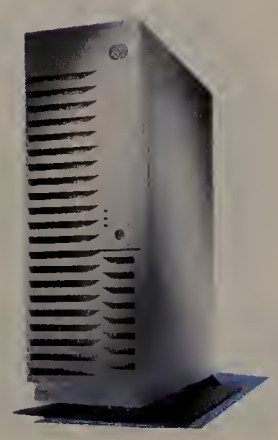

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Compaq takes new route

Server to include Cisco software for remote sites

By Bob Wallace

Compaq Computer Corp. wants to be your router vendor.

Last week, Houston-based Compaq announced it will sell a server that includes routing software from Cisco Systems, Inc. in San Jose, Calif. With this setup, Compaq hopes to provide users at remote sites with an alternative to stand-alone routers.

Compaq is the first computer vendor to announce plans to use Cisco's Internetworking Operating System (IOS) software to support routing in servers. The server is expected during the first half of next year.

"Although they haven't yet talked specifics, putting routing into servers will give users a whole new and cheaper option for remote office routing," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. "And with these servers, users will have one less device to buy and manage."

One large Compaq user echoed Nolle's comments.

"That strategy is a perfect fit for us because Compaq is our primary server platform, and incorporating routing directly into the server would be a more cost-effective plan than dealing with stand-alone routers," said Bill Horst, chief of the General Services Administration's communications branch in Philadelphia.

Four cornerstones

Cisco's Internetworking Operating Software consists of the following internetworking services:

- Adaptive routing
- Wide-area network optimization
- Management and security
- Scalability

Other developments

Compaq and Cisco will also codevelop network management applications that incorporate Compaq's server management technology and Cisco's recently announced CiscoWorks set of management applications. "That's an important aspect because too often network management packages are an afterthought to vendors," Horst said.

Cisco's IOS is like a PC's operating system and supports routing of protocols, including IP, Novell, Inc.'s IPX, Digital Equipment Corp.'s DECnet, Apple Computer, Inc.'s AppleTalk and Banyan Systems, Inc.'s Vines. There is also support for services beyond routing (see chart).

IOS also supports a plethora of wide-area network connections, including X.25, switched data services, frame relay and private lines.

The fast-growing list of IOS licensees includes internetworking giants such as Cabletron Systems, Inc., Cascade Communications Corp., Chipcom Corp., UB Networks, Inc., Northern Telecom, Inc. and Network Equipment Technologies, Inc. Products that use IOS can interoperate.

Analysts said the performance of the planned Compaq server will vary depending on which wide-area service is used.

"Leased-line networks are designed to provide least-cost routing between locations, which means sending traffic through two or more intermediary routers," Nolle said. "With frame relay, every site can have a direct connection to every other site, so intermediary routers aren't needed."

The latter requires less processing to complete data transmissions, which means users could get by with a server-based router instead of a stand-alone unit. Compaq's "strategy is smartest and strongest in frame relay and ATM-based networks," Nolle said.

Compaq officials would not say if the company's implementation of IOS will support frame-relay links. Nor would the officials disclose the server's pricing. They said information might be available by year's end.

Tool vendors line up behind Tivoli standard

By Steve Moore

Last week, eight development tool vendors said they will support a specification that provides a standard way to create "management-ready" client/server applications.

The Applications Management Strategy (AMS) specification comes from Tivoli Systems, Inc., which last week said AMS will be based on the Desktop Management Interface (DMI), an emerging standard to manage desktop hardware and software.

Supporting cast

Tivoli's Applications Management Strategy specification is now supported by Dynasty Technologies, Inc., Forte Software, Inc., Informix Software, Inc., Intersolv, Inc., Oracle Corp., Powersoft Corp., Softool Corp. and Unify Corp.

With management tools that support AMS, users can more easily manage the configuration, performance and resource use of applications that also support it.

Applications that support AMS are expected to become available by the end of the year.

Together, the announcements gave information systems executives the expectation that multivendor software environments will become easier to maintain and troubleshoot.

"I'm hoping that a standard would allow me to buy one tool that I can do all my [applications] management on, rather than several," said Jim Pathman, vice president and director of IS at Option One Mortgage and Fleet Mortgage Group in Santa Ana, Calif. He said that for such a tool to be effective, both off-the-shelf and custom-developed software need to have built-in AMS support.

Another user stressed the importance of Tivoli's move to base its specification on the DMI standard. "We have been telling vendors for years that adoption of standards makes our lives a lot easier, so it's encouraging to see this particular group of vendors adopting a DMI-compliant interface," said John Boreni, director of IS support at National Semiconductor Corp. in Santa Clara, Calif.

Cabletron

CONTINUED FROM COVER 1

logical LANs, assign networking "rights" and bill end users for network use.

"Users are excited about virtual networks but have had to wait for a vendor that has a cohesive plan for managing virtual networks on an enterprisewide basis," said Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn. "Cabletron has the edge because it has the [internetworking industry's] leading network management platform where rivals like Cisco and Bay Networks don't."

Users said Cabletron's approach is better than that of its competitors in another way.

Seamless match

"The big advantage that Cabletron has is that they've developed all of the products internally, which makes their products much more tightly coupled and smooth," said Bob Currier, network communications director at Duke University in Durham, N.C. "To compete, other vendors have to reconcile products brought aboard from mergers, acquisitions and [alliances]."

Cabletron's blueprint will support the following four core functions critical for next-generation internetworks:

- Virtual routing, which is used to establish paths for data transmission between the sender and recipient through increasingly large and complex LAN internetworks.
- Policy management, which enables network managers to set network privileges. This is akin to telecommunications managers' telling employees when and where they can call while at work.

Once the manager programs these capabilities, he can stay with the end users regardless of where they access the network. This is especially important to fast-growing companies.

"Their policy-based management is particularly interesting because it lets users define what their end users can and can't do on the network," said Val Sribar, vice president of networking strategies at Meta Group, Inc. in Reston, Va.

- Call management, which enables network managers to graphically view the paths between end users and devices such as servers and hosts in any size internetwork.

Call management lets network managers optimize their internetworks for performance. For example, if an end user must go through multiple devices to reach a server, the network manager could reconfigure the network.

It can be used to troubleshoot network problems, and it provides data on which end users place calls, their duration and the location of the device called. This lets network managers bill end users for network use.

- Directory services, which as the name implies provide an automatically updated directory containing the location of all devices attached to the LAN internetwork.

Users who want to support these functions will need planned products from three main areas: SecureFast Virtual Networking Server, SecureFast Packet-Switching Software and SecureFast Management Application.

PCs to Rumba with AS/400

Wall Data, Inc. in Kirkland, Wash., plans this week to introduce a new version of its Rumba Access/400 software for connecting PCs to IBM AS/400 systems.

Version 3.0 includes an electronic-mail module that links AS/400 and LAN-based mail packages; support for moving AS/400 data into desktop applications via the Open Database Connectivity specification; TCP/IP and Internet support; and a QuickAssist feature that eliminates repetitive keystrokes.

The product will ship in July at a suggested price of $400. Wall Data said current Rumba Access/400 users can upgrade for $99 through September.

Manheim Auctions, a car auction company based in Atlanta, has beta-tested Rumba Version 3.0 in its systems department for the past three months.

Rick Colbert, manager of client support, said he loses connections to the AS/400 about once a day, which did not happen with previous Rumba releases. He added, however, that he works on a laptop, and desktop users at Manheim have not had similar problems.

—Craig Stedman

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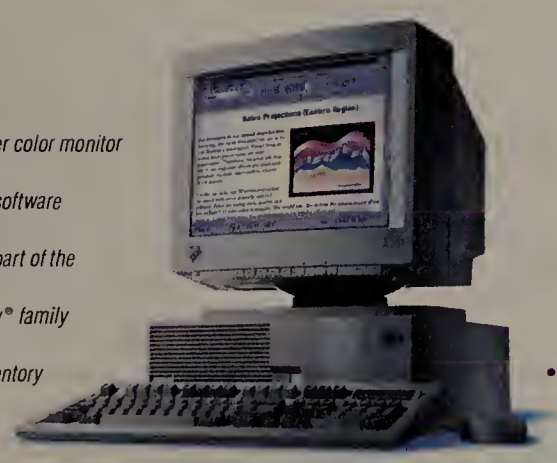

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Vendors beef up bandwidth with high-speed switching

By Bob Wallace

Users looking for bulk bandwidth to the desktop can add Hewlett-Packard Co. and Optical Data Systems, Inc. to the list of available vendors.

HP last week announced the AdvanceStack 10/100 LAN Switch, an Ethernet workgroup switch that can provide a dedicated 10M or 100M bit/sec. of bandwidth per port. Optical Data, meanwhile, offered up a module that delivers Asynchronous Transfer Mode (ATM) to the desktop at 25M bit/sec.

These new products will give users at least 10 times the bandwidth of shared-capacity Ethernet and Token Ring LANs at a reasonable cost, analysts said. This will let users support collaborative computing and imaging.

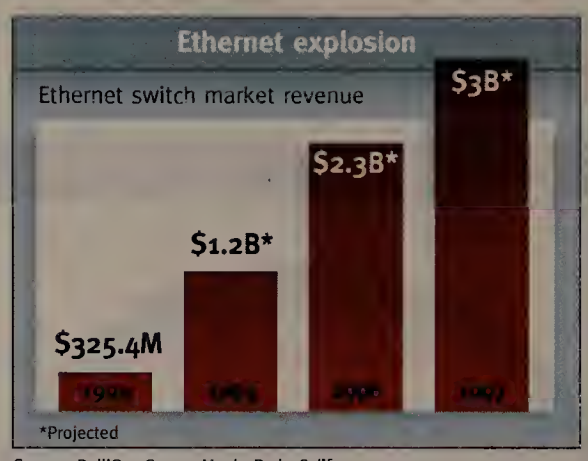
"The Ethernet switch market alone is exploding," said Tamm Dell'Oro, founder of Dell'Oro Group, a Menlo Park, Calif., consulting and research firm (see chart). "And we're seeing vendors race to market or form alliances to provide products that support ATM at 25M bits."

Fewer concerns

Users say high-speed switching will address growing bandwidth concerns.

"We need HP's high-speed switching hub because we're running a couple of client/server applications for 600 users and the input/output was becoming a major concern with our 10Base-T hubs," said Ken Bauer, director of instructional technologies at Severn School in Severna Park, Md.

The AdvanceStack 10/100 LAN Switch comes configured with 16 ports for $6,495 and will ship next month.



Source: Dell'Oro Group, Menlo Park, Calif.

The switch can be equipped with two two-port 100VG-AnyLAN modules that provide high-speed links to servers, other HP switches or backbone networks. The modules will ship in November at $2,195 each. 100VG-AnyLAN competes with 100M bit/sec. Ethernet, both of which work over twisted-pair wire but do not interoperate.

HP's switch can support 10,000 media access control addresses. It comes with a built-in Simple Network Management Protocol management card, which lets users monitor and manage the device.

For its part, Optical Data announced products based on IBM's technology for supporting ATM at 25M bit/sec. The products will include a switch module that has 12 25M-bit/sec. ATM ports for $7,200 and a 25M-bit/sec. ATM adapter card for XT/AT bus PCs for $500. Both will ship next month.

Users can equip existing Optical Data Infinity hubs with up to 10 of the 12-port 25M-bit/sec. ATM modules.

Cisco enhances ATM support on its switches. See page 56.

Bay Networks

CONTINUED FROM COVER 1

end router. This product is equipped with 13 ports, 52 interfaces and offers throughput of more than 1 million packets per second.

All of the forthcoming products will use the company's Optivity network management platform and are slated for third-quarter availability, the sources said.

Bay will also solve the mystery of its missing-in-action 10M-bit/sec. 28015 Ethernet switching hub. Bay will repackage a switch from Xedia Corp. as part of its technology licensing agreement with the Wilmington, Mass., company, the sources said (see story below).

These initial product salvos from Bay and technology partner Intel Corp. fulfill promises made in March.

"These announcements indicate that Bay will be offering a full complement of switching solutions, and that's a good thing for both the installed base and potential new users," said Mike Harper, an independent technical consultant at AT&T Bell Laboratories in New York, which is beta-testing many of the new switches.

Eric Hindin, a senior network consultant at Strategic Networks Consulting, Inc. in Rockland, Mass., agreed. He said that while it has yet to be determined how popular 100Base-T will become, the forthcoming products "illustrate that the merger hasn't stymied Bay's ability to deliver products. And this is crucial in the highly competitive internetworking market, where the players include Cisco, 3Com and Cabletron and which has extremely short product life cycles."

With the announcement, Bay will offer a complete set of switches and switching modules for its routers, ranging from entry-level 10M-bit/sec. stackable workgroup switches to 100M-bit/sec. high-end devices. Hindin said the latest spate of offerings — among the broadest in the industry — keeps Bay competitive with rivals such as 3Com Corp., which recently introduced its LinkSwitch family of switches.

The Bay 100Base-T switches and switching modules for the company's various routers will use Intel's current EtherExpress Pro/100. They will also use the 100Base-T4 fast Ethernet adapter when that ships later this year.

Switching cornucopia

The unavailability of the Bay Networks 28015 6-port Ethernet switching hub, expected to be announced in mid-July, has not been a hardship for users. There are plenty of other models to choose from, including the following:

Vendor/Product	Ports	Available	Price
Cisco Systems *Kalpana ProStack-16*	16 10Base-T; 1 100M bit/sec. Ethernet	Since last year	$7,200
Cabletron Systems *ESX-1320*	12 10M bit/sec.; one expansion port for 100M bit/sec. FDDI; 100M or 155M bit/sec. ATM	Since March	$12,995 includes Remote Monitoring
Chipcom *ONsemble Workgroup Switch*	16 Ethernet	Since early spring	$9,495
Hewlett-Packard *will resell Cisco's Kalpana ProStack-16 as HP AdvanceStack 10/100 Switch*	16 10/100M bit/sec. Ethernet switching	July	$6,495
3Com *LinkSwitch 2200*	16 Ethernet switching; 2 FDDI	Since May	$9,995

Ship through the Bay

Among the 100Base-T devices slated to be introduced as part of Bay Networks' product blitz later this month and due to ship in the third quarter are:

- **28015 Ethernet switching hub**
  A six-port device with one optional expansion port for 100Base-T connections; competitively priced at $2,995
- **100Base-T stackable hub**
  A 12-port device that will initially support copper media and add support for Category 3 100Base-T wiring by year's end
- **28104 switching hub**
  An eight-port fiber switch for collapsed backbone nets
- **100Base-T interface**
  For the AccessStack Node router
- **Dual 100Base-T interface**
  For the high-end backbone node family of 13-port routers

Unsolved mystery #28015: Case closed

Users who have been wondering about Bay Networks' long-delayed 28015 10M-bit/sec. Ethernet switching hub can stop speculating.

Sources at Bay revealed that the product will indeed ship in the next six weeks — albeit in a slightly different form. Instead of producing the switch internally, Bay has opted to sell Xedia's MAD Switch/10. This is a 10M bit/sec., six-port Ethernet switching hub with one 100Base-T expansion port.

Originally, Bay's specifications called for the 28015 Ethernet switch to be a 10M-bit/sec. device with 16 ports and one expansion slot for 100Base-T links. It was going to carry a price tag in the $8,000 range.

The price on Xedia's six-port basic unit is considerably lower — $2,995, or $4,550 with the optional 100Base-T card. Sources said Bay's 28015 offering will be comparably priced.

The 28015 Ethernet switching hub, initially announced by the former SynOptics Communications months before its merger with Wellfleet Communications, was due out last year but never shipped. In the months since the merger, the issue has become a sore one for many users because Bay was mum on the subject.

One irate user on Bay's CompuServe forum simply got tired of waiting. "A year with no product was too long. I went out and bought a competitor's switch," said the user, who requested anonymity.

— Laura DiDio

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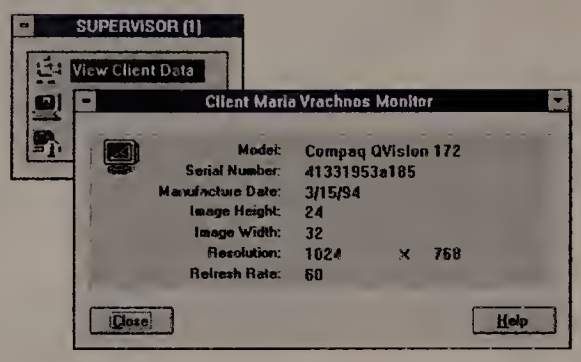

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COMPAQ

LotusScript 3.0 embedded in Notes 4.0

By Suruchi Mohan

Seeking to make application development user-friendly, Lotus Development Corp. recently unwrapped LotusScript 3.0, an object-oriented programming language that will be embedded in Notes 4.0.

Initial industry reaction has been favorable. "One of the key problems with Notes is it is very difficult to develop applications for," said Mitchell Liu, vice president of marketing at Brainstorm Technologies, Inc., a Notes developer in Cambridge, Mass.

"The Macro language [used in the current version of Notes] is not a full-fledged language," he said, noting that embedding LotusScript in the new version of Notes will be key to extending programming capabilities.

Power users also said they hope LotusScript will help. "It is a big improvement," said Stacy Hunt, Notes technical lead at Chevron Information Technology Co. in San Ramon, Calif. "It is a structured language, better than the Macro language in use today."

LotusScript 3.0 is a Basic-compatible structured language that will run on many platforms, including Microsoft Corp.'s Windows 95 and the Macintosh, without any change.

E MAIL

Today, Notes offers application developers Macro language that is declarative rather than structured, meaning it offers fewer controls.

Conversely, LotusScript 3.0 will let developers switch among Simple Actions, Macro and Script, and it gives them full control over features such as design templates, agents and replication modules. Further, it will be easy enough for users to write their own agents to perform specific tasks.

Wishful thinking

Some users said the use of Microsoft's Visual Basic for Applications (VBA) would have made application development even easier for those who develop applications in-house.

"I wish they could have used VBA. It would be nice if everyone could use the same scripting language," Hunt said. However, LotusScript 3.0 is close enough to VBA to make learning fairly easy, she added.

Missy McElwee, manager of Notes development at Sedgwick & James in Memphis, agreed.

"It should be so close to VBA that it won't be hard to find talent," she said. McElwee said VBA has a large talent pool and its similarity to LotusScript 3.0 . would make learning easier.

"VBA is very strong," said Harry Wong, president of Casahl Technology, Inc., a developer in Danville, Calif. But, he explained, LotusScript 3.0 is very well integrated with Notes 4.0 — something VBA cannot touch.

Although the two languages are quite similar so that VBA developers will not have much of a learning curve, Lotus wants to keep LotusScript 3.0 distinct from VBA.

"Every Lotus business partner will welcome LotusScript because it has come a long way," Liu said.

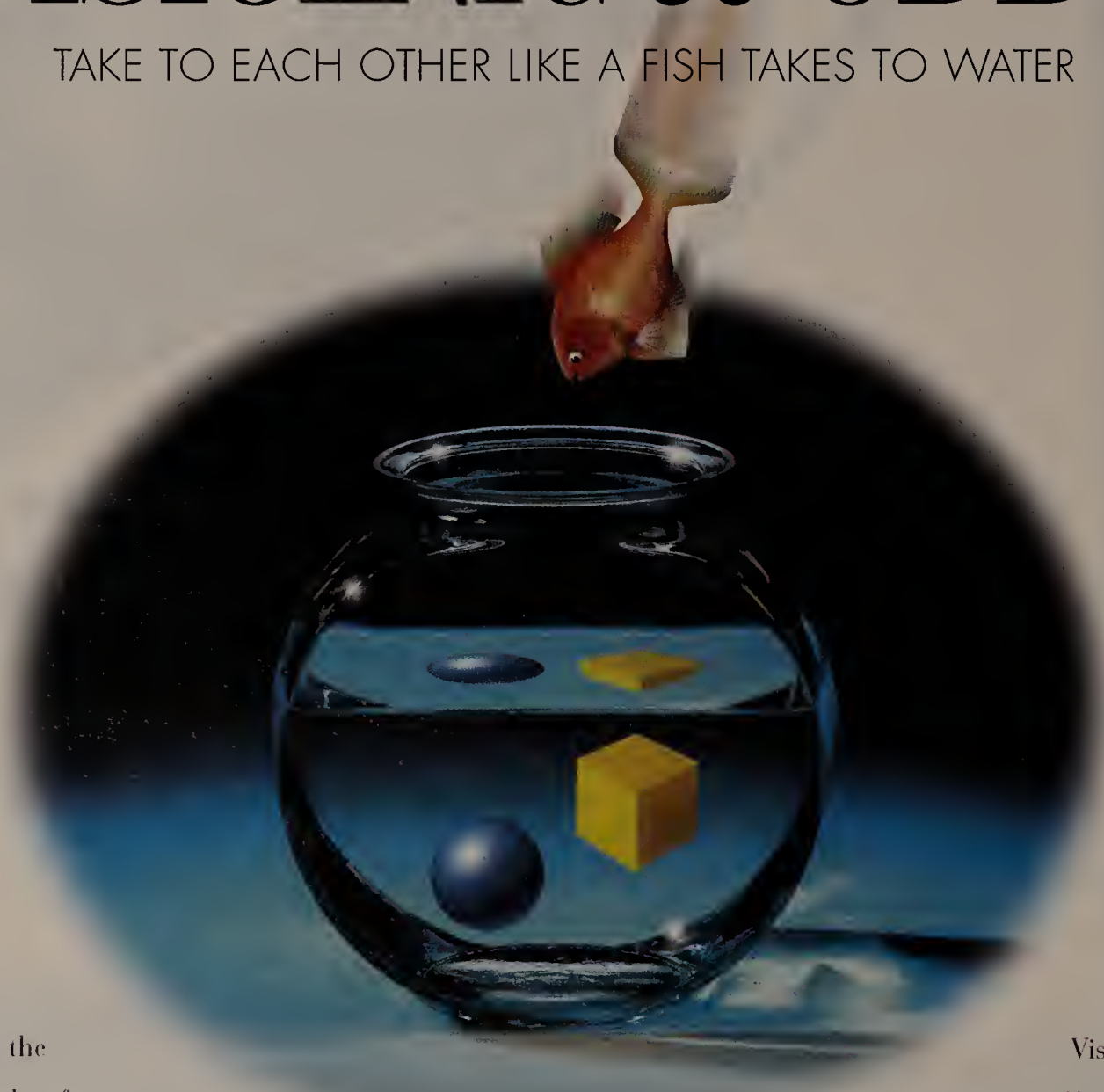
Matt Cain, program director at Meta Group, Inc. in Stamford, Conn., said the language has several strengths. The fact that it is bundled with Notes and is a cross-platform application is its greatest strength. However, one area where it falls short is team development. The product does not have a component for team computing. For example, it does not have a check-in/checkout library.

Easy time

Notes developers want an easy programming tool across platforms, said Barry Reynolds, president of Percussion Software, Inc. in Stoneham, Mass. "Third-party tools are platform-specific," Reynolds said.

VISIGENIC & ODBC

TAKE TO EACH OTHER LIKE A FISH TAKES TO WATER



Does the thought of writing to multiple API's to achieve cross-platform database connectivity make your head swim? The solution is ODBC. The complete ODBC solution provider is Visigenic. Visigenic, the SQL database expert, has been granted an exclusive license to provide the Microsoft ODBC Software Development Kit (SDK) across multiple platforms.

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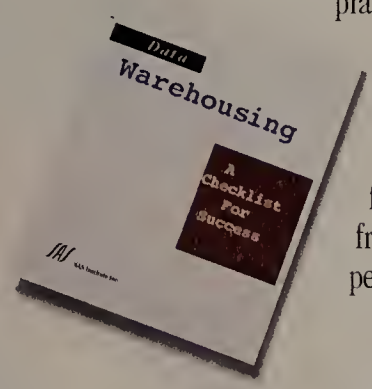

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Netscape to go public by year's end

Competitor Spyglass puts up strong showing following issue of IPO last week

By Ellis Booker

Market makers are eagerly awaiting an initial public offering (IPO) from Netscape Communications Corp., which last week confirmed it had filed plans with the Securities and Exchange Commission for a stock offering.

The offering is expected to debut in mid-August.

Observers say they expected that the Mountain View, Calif.-based Netscape would go public before the end of the year. Jim Clark, former chairman of Silicon Graphics, Inc. and Netscape's founder, has made no secret of this intention. He has been edging closer to the IPO with equity deals such as one announced in April in which Netscape sold an 11% stake to a group that included Adobe Systems, Inc., Knight-Ridder, Inc. and Times Mirror Co. for $17.3 million.

In a recent interview, Clark said management and employees would own "over 70%" of the company once it goes public. Moreover, Clark said at the time he was not concerned about a hostile takeover a la IBM's bid for Lotus Development Corp. "I will own [approximately] 40%, thus giving me a lot of say about being taken over," he said.

Big deal

Recent high-value Internet pacts include the following:

DEC. 22, 1994

AT&T buys the Interchange Network Co., developer of the Interchange Online Network, from Ziff Communications for a reported $50 million.

MARCH 14, 1995

CompuServe, an H&R Block company, acquires Internet In A Box maker Spry for $100 million.

JUNE 1, 1995

America Online acquires Global Network Navigator, a subsidiary of O'Reilly & Associates that provides on-line news and information, for $11 million.

JUNE 20, 1995

AT&T announces a three-year, $120 million alliance with Internet access and services company BBN.

Netscape's preliminary prospectus does not state a share price. The prospectus, which will be amended in mid-July with second-quarter revenue figures, showed the company had a loss of $2.7 million on revenue of $4.7 million in the first quarter.

Moneymaker

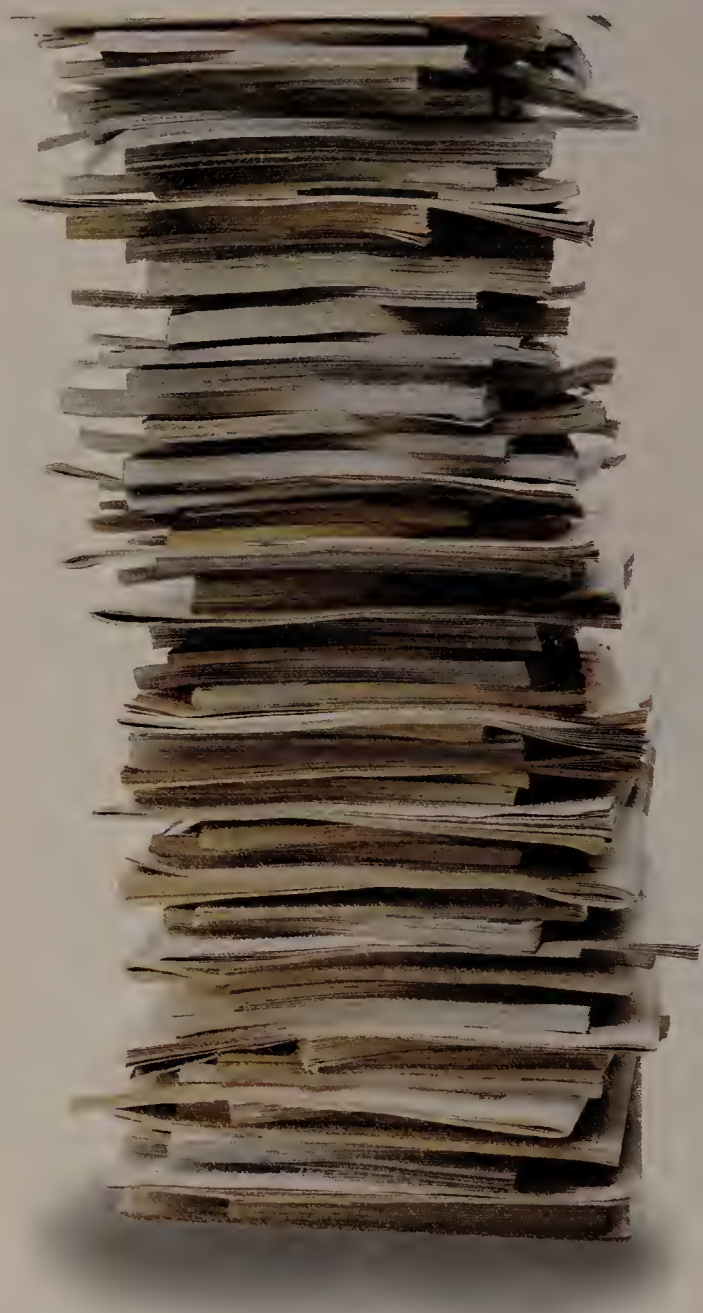
Nevertheless, smart money is betting the IPO of 3.5 million shares of common stock will generate well over $45 million.

Indeed, Netscape's fortunes might have been telegraphed by the very strong showing of competitor Spyglass, Inc., which issued its own IPO last week. Naperville, Ill.-based Spyglass, the master licensee of the Mosaic browser developed at the University of Illinois, issued 2 million shares at $17. As of press time, the market price had ballooned to $28.25.

Money has been flooding into companies elsewhere in the Internet space, too (see chart). Some deals, such as CompuServe, Inc.'s $100 million acquisition of Internet software maker Spry, Inc., were deemed excessively generous. Some analysts said companies are paying top dollar for fear of being left behind when Internet commerce reaches critical mass.

"How overvalued [are these deals], if [they get] you into the game before the dam bursts?" asked Peter Krasilovsky, a senior analyst at Arlen Communications, Inc. in Bethesda, Md.

Choice Hotels opens its doors on the Internet. See page 60.



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   12. Vice President, Asst. VP
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   70. Medical, Legal, Accounting Mgt.

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   90. Other Titled Personnel

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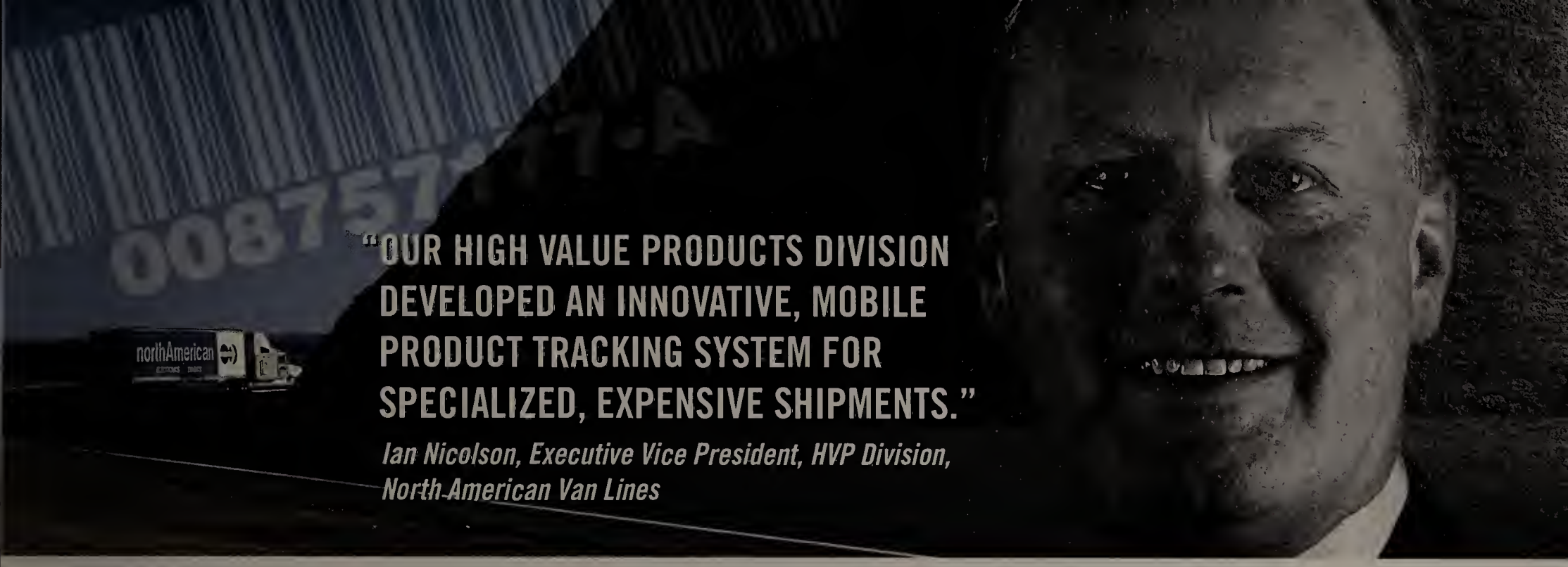

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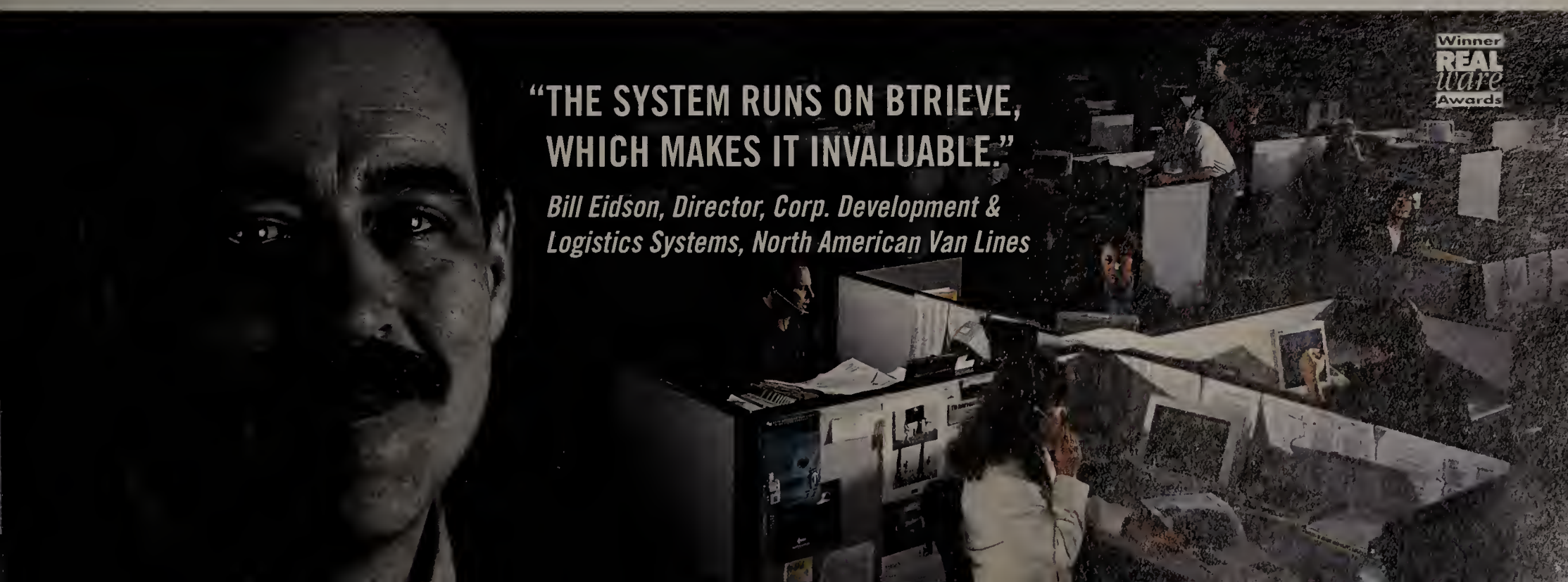

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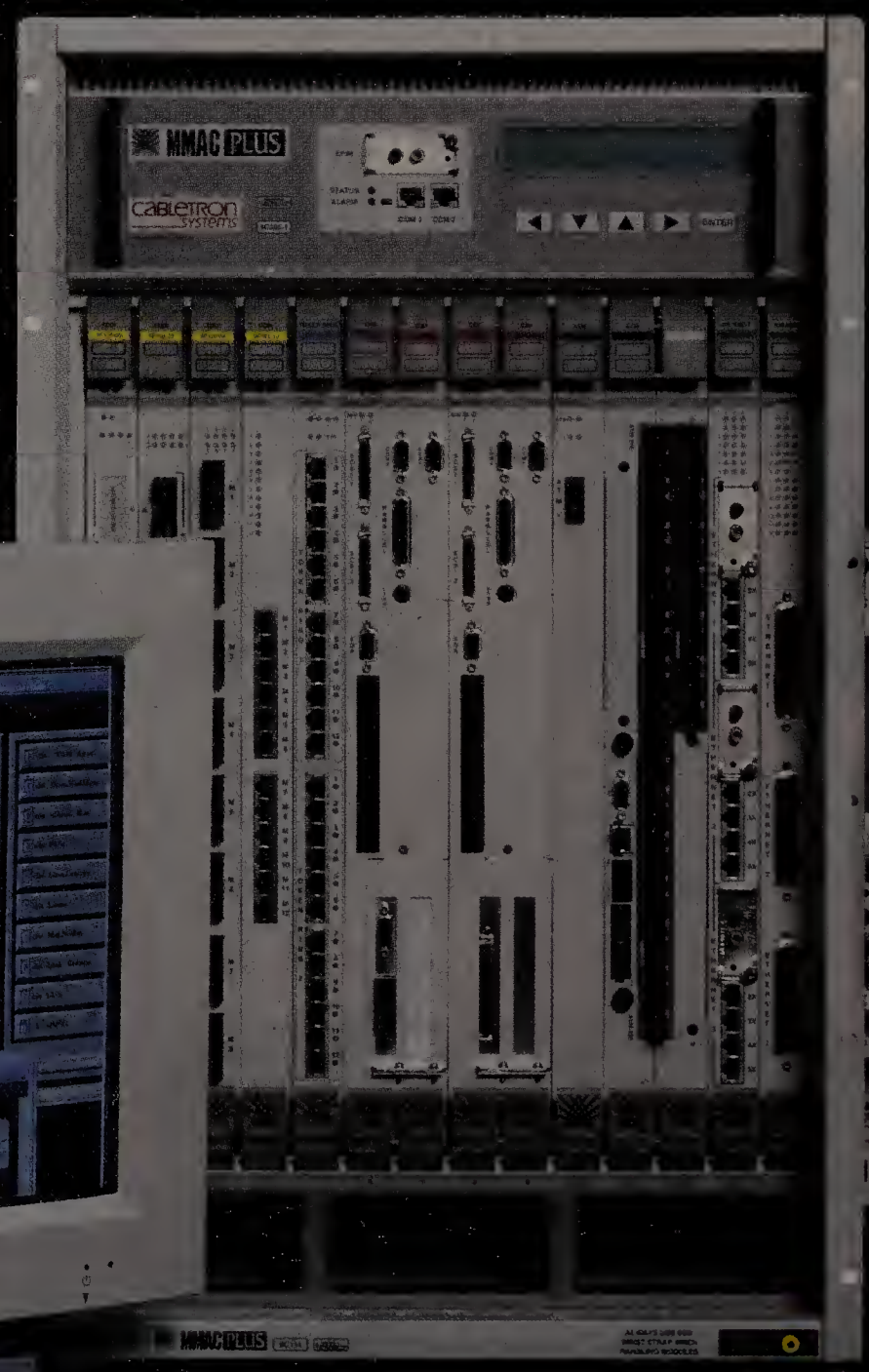

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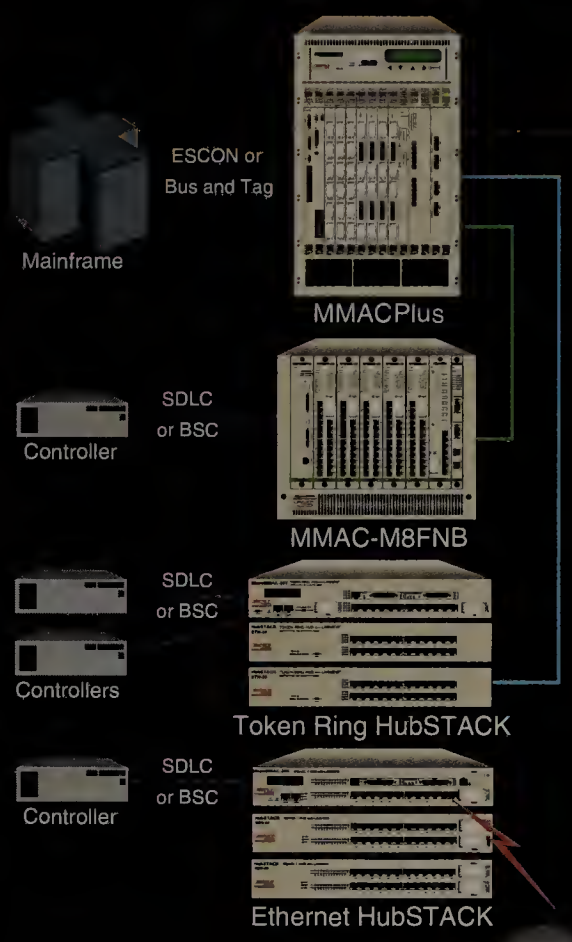

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Powerful processing

Parallel systems boost power but problems linger

By Michael Goldberg

Fidelity Investments in Boston now gets answers in 10 minutes rather than five weeks.

With a 64-processor massively parallel Teradata system from AT&T Global Information Solutions in Dayton, Ohio, managers at Fidelity can examine the costs of its financial products and decide which customers should receive certain mailings. Its systems save Fidelity a considerable amount in printing and postage costs, although John Trustman, retail marketing systems vice president at the company, would not specify how much.

He did say, however, that the savings are enough to justify the "tens of millions of dollars" the firm spends on hardware and software from at least eight vendors.

Parallel processing's promise of massive raw computing power lets users such as Fidelity, Delta Air Lines and ShopKo Stores, Inc. go "data mining" and analyze information in new ways. Still, users and vendors said the speed gains may not be enough to lure end users because using the technology effectively requires specially designed queries and a lot of staff training.

For their part, vendors said they are working to make the technology easier to use (see story at right).

Trustman said parallel-processing systems, a category that includes massively parallel processors (MPP) and symmetrical multiprocessors (SMP), must become easier for nontechnical people to use.

Fidelity Investments uses an array of technologies in its marketing systems

Types of systems	Vendors
MPP for decision support	AT&T GIS and IBM
Networking products	Digital
Midrange hardware	Hewlett-Packard
Internet applications	Silicon Graphics
On-line transaction processing hardware	Pyramid Technology
Fault-tolerant communications systems	Tandem Computers
Database management system	Informix Software

What they need, Trustman said, is a good set of access tools for nontechnical users to analyze the information they collect in data warehouses. "The data mining tools are still primitive," he said.

Just learning to set up a 400G-byte database — the bedrock of ShopKo's merchandising and inventory systems — on an MPP "took a good six months," said Jim Tucker, ShopKo's senior vice president and chief information officer.

The 130-store retail chain based in Green Bay, Wis., is switching these mission-critical merchandising and inventory applications from an IBM ES9000 to a 26-proeessor SP2. The SP2 packs roughly eight times the computing power of the mainframe and costs one-third as much, Tucker said.

At Atlanta-based Transquest Information Systems — the information systems venture of AT&T GIS and Delta — managers are salivating at what they envision for the future: flight reservations staff connected to a GIS 3600 offering specific promotions to customers based on their travel histories.

"That's in the future. This is in its absolute infancy with us in terms of how we want to use [parallel processing] with data mining," said Mark Whitney, technical director of research and development at Transquest.

Andre Dahan, AT&T GIS vice president of customer solutions marketing, acknowledged the shortcomings of today's systems. "Little did we know [customers'] insatiable appetite for analyzing data. Now we're finding out there are limitations" to the available tool set, he said.

User-friendly the goal

Parallel processing vendors said they are working to make their souped-up systems more user-friendly through hardware improvements and partnerships with software makers.

Business applications for the technology are relatively new, said S. Boyd Pearce, marketing vice president at Pyramid Technology Corp. in San Jose, Calif.

"We're going through a learning curve in how we build the tools and how we take advantage of those users who are more computer literate and package the methodology they use" for new users, Pearce said.

In the user-friendly effort, Pyramid and Tandem Computers, Ine. in Cupertino, Calif., cited their partnerships with Stanford Technology Group, Inc. in San Francisco to develop data mining applications. And Maynard, Mass.-based Digital Equipment Corp. on June 21 announced an effort with Oracle Corp. in Redwood Shores, Calif., to help new users deploy data warehouses.

Chuck Buffum, Tandem's director of decision-support solutions, said his company is building a series of standard database interfaces for data mining applications. It is an approach AT&T GIS is taking, too, the company said.

Other vendors eited similar themes. IBM in Armonk, N.Y., masks the eomplexity of its high-end systems such as the SP2 with a control workstation to ease management. And Hewlett-Packard Co. in Palo Alto, Calif., is developing data query tools that provide a "predictive functionality" for users, anticipating what information they will need.

Sales of MPP or SMP are now at about $1 billion per year and should reach $5 billion per year by 1998, according to Howard Richmond, director of high performance commercial computing at Gartner Group, Inc. in Stamford, Conn. --*Michael Goldberg*

Software firms take notes from paper business forms providers

By Tim Ouellette

These days, companies that have traditionally provided business forms to corporate America find themselves facing death by microchip — the boom in electronic forms software and imaging technology coupled with paper price increases.

But the paper forms companies, with sales of $8.4 billion last year, have one huge resource in their corner that software companies need: customer relationships that in some cases date back to the last century.

"The thing we have that most people don't have is the customers," said Bob Nevin, vice president of the Business Forms Division at Reynolds and Reynolds Co. in Dayton, Ohio. "That is the biggest stumbling block with most of these software companies."

And software companies are taking note, forming relationships with the paper forms giants to get to those huge customer bases.

For example, Bellevue, Wash.-based Saros Corp., a growing provider of doeument management software, has inked a reseller agreement to provide its Mezzanine document management engine to Standard Register Co. in Dayton, Ohio, for systems integration.

"No one understands like they do the business processes captured in those forms," said Brian Cassidy, viee president of business development at Saros. "They havc business process designers who know intimately the business flow of their clients."

Necessary feature

It is an important value addition because large customers have a tendency to turn to their business forms provider first for those reasons. "When [customers] look to a solution for a paperwork problem, it is not unusual to look at that provider first," Mike Leatherman, chief information officer at Wallace Computer Services, Inc. in Hillside, Ill. "They want a vendor that is doing more than selling licenses for software. They want someone who understands their problems."

PaineWebber, Inc. looked only at the major forms companies to automate the management, ordering and updating of its business forms because an off-the-shelf software package could not handle the work. They ended up with Wallace's Wallace Information Network (WIN), life cycle management software for paper and electronic forms.

"The technology Wallace utilized was the most important factor in the decision," said Vito Giuliani, corporate vice president of contract administration at PaineWebber in Weehawken, N.J.

According to Marty McDevitt, an analyst at Cleary, Gull, Reiland and McDevitt, Inc. in Milwaukee, the only companies in the industry that will survive the growth of technology are those that become systems companies.

So the forms companies now focus on providing consulting and integration services designed to ease client transition to computer technology without losing their investment in paper documents. "The reality is we are more service-oriented, more of an outsourcer," said Leatherman, noting that paper forms make up only 40% of Wallace's sales.

And some are now providing their own products: Reynolds and Reynolds has purchased DealerNet, an on-line service that focuses on providing automobile dealerships with marketing avenues over the Internet.

Girding for battle

Business forms revenue is expected to drop slowly from $8.4 billion last year to $8.1 billion in 1997, according Clearly, Gull, Reiland and McDevitt, but leading market players are not standing still

Company	Action
Moore	Forms market leader has inked a $13 million deal to provide mail systems and forms to Ceridian, a human resources software vendor
Reynolds and Reynolds	Bought Dealer Internet Services for its DealerNet on-line service targeted at automobile manufacturers, dealers and consumers
Standard Register	Will resell Saros' Mezzanine document management software as part of its integration services
Wallace Computer	Developed WIN software and formed an alliance with MedPlus, a bar-code printer in the health care industry

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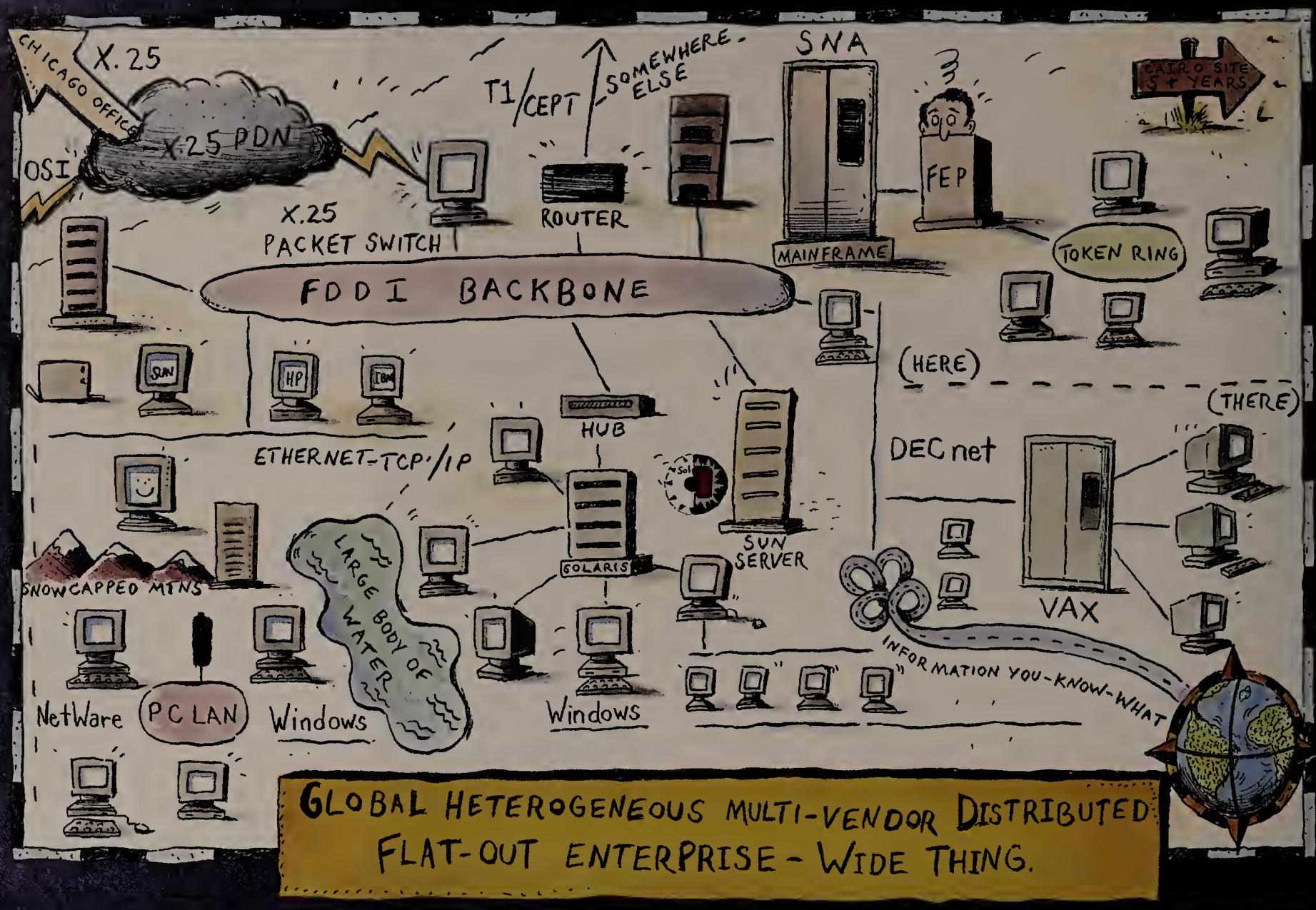

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Briefs

Cognos CEO retires

Michael Potter, chairman and chief executive officer of **Cognos, Inc.** in Ottawa for the past 20 years, plans to retire once a replacement is found. Potter, retiring to have more personal time, will remain on Cognos' board of directors.

Fax patent squabble settled

Ibex Technologies and **FaxBack, Inc.** will receive a license for **Brooktrout Technology, Inc.**'s fax-on-demand patent as part of a lawsuit settlement. The lawsuit sought to invalidate Brooktrout's patent, arguing the technology existed before the patent was issued.

ParcPlace predicts loss

ParcPlace Systems, Inc. expects to report between $7 million and $8 million in revenue for its first quarter, ended June 30, resulting in a loss of between 11 cents and 18 cents per share. Final results will be announced Aug. 1.

U.S. tech sales up

Electronics equipment and services revenue for U.S. vendors boomed in the first quarter, hitting $107.4 billion, compared with $90.1 billion in the first quarter of 1994, according to the American Electronics Association. Communications equipment and components led the way, growing 33.5% and 21.2%, respectively.

Entex lowers Random bid

Entex Information Services, Inc. has reduced its purchase price for **Random Access, Inc.** due to expected losses by that company in the most recent quarter. The new price is down to $3.25 a share from $3.50, for a total price of $22 million.

SHORT TAKES D. Scott Mercer, executive vice president and CEO of **Western Digital Corp.**, has been named to the board of directors of **Alantec Corp.** . . . **Wang Laboratories, Inc.** has elected Joseph J. Kroger to its board of directors. . . . Leonard Y. Liu has been appointed chairman, president and CEO of **Walker Interactive Systems, Inc.** . . . **Semtech Corp.** has named James T. Schraith, president and chief operating officer of **AST Research, Inc.**, to its board of directors. . . . **SystemSoft Corp.** has acquired **Ventura Micro, Inc.** . . . Edmund H. Shea Jr. resigned last week from the board of directors of **Rexon, Inc.** . . . . **Radius, Inc.** has sold 2.5 million shares of its common stock for $23.6 million to a small number of investors unaffiliated with the company. . . . **Autodesk, Inc.** will repurchase 2 million shares of its stock to offset earnings reductions from its employee stock plans.

Adobe builds publishing empire

By Tim Ouellette

By exchanging a hefty $500 million for the rights to Frame Teehnology Corp., Adobe Systems, Inc. seeks to cement its position as a major player in desktop software, while keeping clear of giant Microsoft Corp.

Adobe plans to sidestep the behemoth by hitting the market with a double whammy in desktop publishing, an arena not under Microsoft control. Specifically, Mountain View, Calif.-based Adobe will push Frame's FrameMaker, a mostly Unix-based text-intensive technical publishing package, and PageMaker, gained from the purchase of Aldus Corp. last year and aimed more at PC and Macintosh graphics users.

With Adobe's Acrobat and Capture software and popular PostScript and PDF file printing formats, the combined company will be able to cover much of the territory of creation, publishing and maintenance of both graphical and technical documents.

All this spells trouble for competitors Interleaf, Inc. and Quark, Inc.; the former is already suffering from declining sales. And Frame should expect layoffs, because Adobe wants FrameMaker more than it wants a company, said Karl Wong, an analyst at Dataquest, Inc. in San Jose, Calif.

"The only piece left to fill is multimedia," Wong said. He pointed to Macromedia, Inc. as a possible target, though Adobe Chief Executive Officer John Warnock has denied any such interest.

Users last week debated whether Adobe would try to merge the products into a "FrageMaker" application or differentiate the two further by removing features. Last year Adobe had to give up its Freehand product as part of the Aldus deal due to monopoly concerns.

"My fear is that there will deliberately be more separation" and removal of features, said Dan Katz, an Adobe and Frame user at TKO Software in San Anselmo, Calif. He pointed to FrameMaker's text-wrap feature, long desired by FrameMaker users. "If Adobe had owned Frame a year ago, [that feature] might not have made it into FrameMaker," he said.

"I think everyone has the wrong end of the stick," said Susan Glinert, a book designer in Baltimore. She said Adobe is a big user of FrameMaker for its documentation and therefore will back the product. "I never saw a single thing from Adobe that was on PageMaker," Glinert said.

Framing a strategy

Adobe has been acquiring pieces to add to its document creation and management puzzle.

***Expected next, according to Dataquest, Inc.**

Year	Company	Product	Market
1994	Aldus	PageMaker	Desktop graphics and publishing
1994	LaserTools	PrintCache	Printer management software
1995	Frame	FrameMaker	Unix technical publishing
Prediction*	**Macromedia**	**Director**	**Multimedia authoring**

Distributed computing forces keen battle for service dollars

By Jaikumar Vijayan

Don't look now, but things are changing in the desktop services industry.

The booming market for client/server support services is forcing some fundamental — and seemingly contradictory — shifts in relationships among hardware vendors, their channel partners and third-party support organizations.

The primary outcome of these evolving relationships, according to observers, is cheaper, more sophistieated, one-stop multivendor support for customers.

"Distributed computing management is a fairly new area, and there is a big service gap right now that a lot of people are trying to fill," said Kathleen Schaub, vice president of technical services at Vanstar Corp., a reseller in Pleasanton, Calif.

Can we talk?

In the process, however, vendors, third-party service providers and channel partners are being forced to reevaluate their interactions with one another, she said. As vendors and traditional service providers try to broaden their range of support offerings, they are being forced together even as they eompete.

"We are all trying to learn the rules of engagement. We are pretty much dealing with it on a case-by-case basis," Schaub said.

U.S. PC support services revenue is expected to total $3.1 billion in 1995, according to figures from International Data Corp. in Framingham, Mass.

For instance:

- Vendors and their channel partners have begun to compete more openly against one another. Since the beginning of this year alone, at least three major vendors — IBM, Digital Equipment Corp. and Unisys Corp. — have launched comprehensive multivendor desktop and network services that take them deep into traditional third-party support and channel territory.
- At the same time, these players have also begun to forge alliances with one another. As some hardware vendors reposition themselves as one-stop PC and network service outsourcers, they are hooking up with partners who can help execute this strategy logistically. For instance, IBM named Entex Information Services in Rye Brook, N.Y., as an International Business Partner to help coordinate global support programs.
- Value-added resellers (VAR) and other channel support partners are expected to settle in at the low-margin, foundation services markets — basic multivendor client support and maintenance — while hardware vendors such as IBM, Digital and Unisys are expected to corner the high-margin, booming network services markets.

But a partnership could link the capabilities into a comprehensive one-stop service offering. In some cases, vendors such as IBM and Hewlett-Packard Co. subcontract client support to VARs and handle network management themselves.

"Somebody has to do the multivendor part of it, and somebody has to do the network management piece," said Glen Miller, vice president of client services at Entex. Right now, VARs such as Entex are better equipped to handle support on the multivendor client side because they have previous experience, he said.

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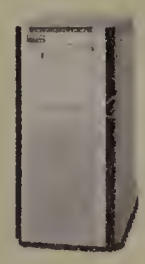

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Editorial

Put to the test

Nearly two years ago, I sat in a room with about 50 IS managers and learned how to use Apple's Newton for our personal use during a two-day conference.

The ballyhooed climax of the tutorial was the act of "beaming." Participants moved their chairs within three feet of a partner and pointed their personal digital assistant (PDA) at their partner's. The sheepish and bemused managers were supposed to use Newton's infrared light source to transmit an image of their business card to their partner's machine.

The scene was both funny and sad. It was funny because many managers couldn't contain their mirth while watching their cohorts play a silly game of corporate laser tag. It was sad because a respected company had so badly misread the users and market for what it thought would be a blockbuster product.

That was two years ago. At that time, PDAs were costly, cumbersome and suffered from a basic failure to communicate. How far have they come since then?

According to our CW Guide to PDAs starting on page 72, not very far. The handwriting recognition, touted as the killer app for the early PDAs, still stinks, and communications are spotty and costly.

And most fatal of all, PDA Nation is still largely a technology in search of meaningful applications, which brings me to the point of this editorial.

The computer industry is driven by tinkerers, engineers and extraordinarily bright people with a deeply rooted fascination for gadgets. Their results emerge from labs, clean rooms and even garages.

Marketing and salespeople, who allegedly have their fingers on the pulse of application-driven demand, then pick the proper gadget to fill the anticipated demand, leaving other gadgets in the lab. Apple did a superb job selecting the graphical user interface for the Macintosh. IBM did a terrible job of initially rejecting the RISC gadget it pioneered.

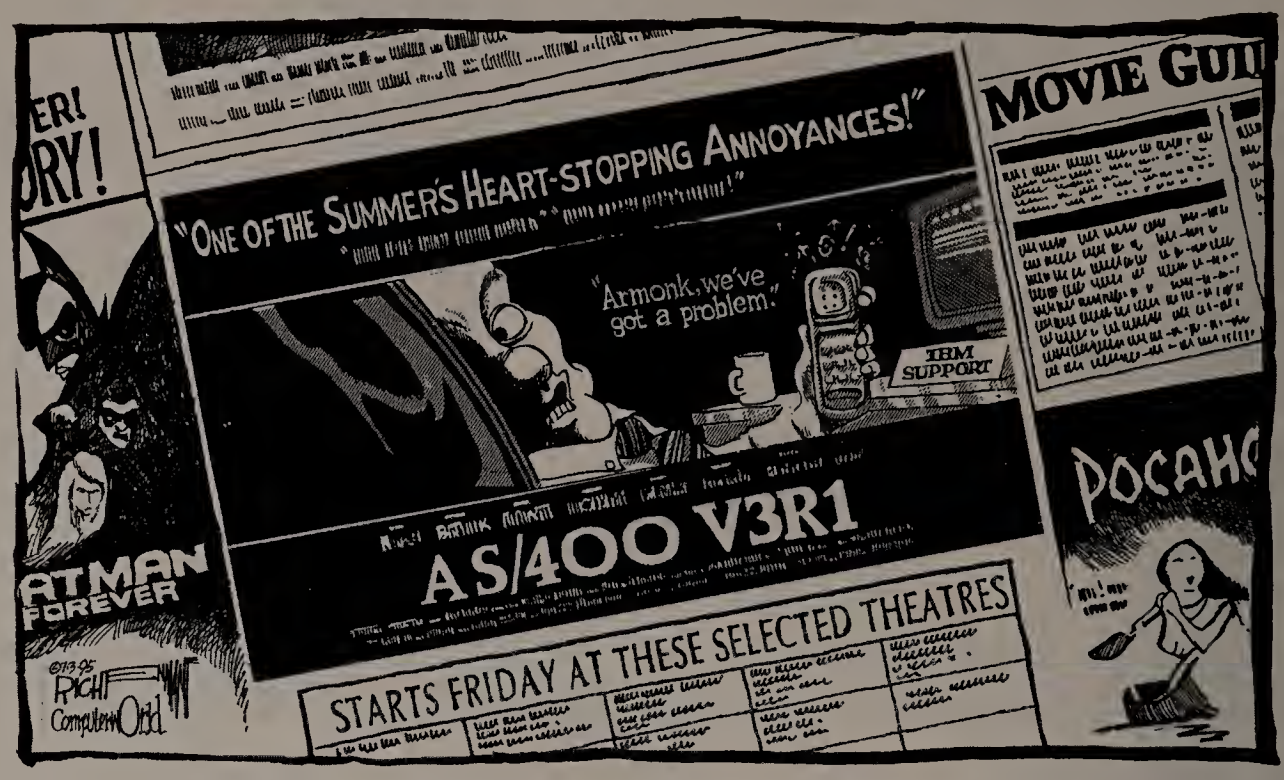
Whether the marketing people properly match up the gadgets with real demand, they inevitably unleash a tsunami of hype about whatever technology they bring to market.

In a culture like ours — one increasingly obsessed with gadgets — IS often stands as the lone bulwark against the crush of hype and technology in search of applications. This lonely and often unpopular role has IS managers asking the same questions over and over about the myriad requests for each new gadget: What will this do for our company? How will it make us more competitive?

IS asked that question of PDAs, and as a result, the technology is still confined to some niche applications. It has asked that question of Internet access, various personal productivity tools and products such as Windows 95. In that way, IS remains vital and essential, if yet unpopular.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*



Letters to the editor

Love/hate feelings for Microsoft

It hurts badly to simultaneously agree with both Howard Anderson and Martin A. Goetz ["Is Microsoft out of control?" CW, June 19]. The market needs to work, and Microsoft will probably cripple itself in time, but it has too much control today.

As a user, I hate Microsoft products because the company tries to legislate what I will use on my desktop, how it will work and how much money I'll have to spend on hardware to get it to run.

Why can Microsoft do this? Because users tolerate a lot, especially if the boss says, "This is the computer. Use it."

Microsoft can also do this because it has performed marketing miracles, and because the press has largely assumed Windows to be the standard today and for the future.

The trade press has a lot of responsibility. Tell people how badly some of the stuff works, give its competition more ink and then see if the antitrust suits are really necessary.

Larry Brunelle
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Senate obscenity bill is obscene

One thing that you neglected to mention in your coverage of the Senate bill to stop on-line obscenity is that the bill also includes "indecent" language ["Senate votes to ban on-line obscenity," CW, June 19]. So if I post a four-letter word, I could be fined and thrown in jail.

This bill will not stop anything. It should be up to parents to restrict access. New technology will enable that.

I urge everyone to call their congressman and tell them you are against the bill. As it stands now, we are at one extreme. Would it be any better to go to another extreme? No. We need software to change with the times and not some Bible-thumping congressman taking our rights away.

Gene Beilfuss
Green Bay, Wis.
watcher@online.dct.com

More help for help desks

Regarding "Tools for the help desk" [CW, June 12], here is an excellent Internet mailing list and companion newsgroup on help desks called the help desk list. To get at the frequently asked questions (FAQ) for this list, including directions on how to get to the list, the World-Wide Web address is http://unhinfo.unh.edu/1/internet/local/faq/HelpDesk.FAQ.html.

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No RISC here

I am a bit confused about your conclusion that PC/RISC servers are not ready for prime time ["Taking the RISC out of servers," CW, June 19].

We have IBM RISC servers, Compaq desktops, laptops and servers, Hewlett-Packard printers and 3Com hubs. Our network, after initial installation two years and five months ago, has been available 99.5% of business hours. If you extend that to 24 hours, 365 days per year, the availability is better than 99.9%. I spent 20 years in the Fortune 500 mainframe world prior to managing this outfit and have never seen a mainframe that could compete with our system for availability.

We haven't had a burp with TCP/IP or a Compaq SytemPro/Novell network. Sometimes it takes us 15 minutes to remember to reset our 3Com concentrator after a storm because it rarely shuts down. We have yet to lose a single bit of data from our Progress database after a system crash.

I think its high time we drove a spike through the last mainframe bigot's heart and got on with doing business using real computers.

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■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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For information on how to contact *Computerworld* editors, see page 104.

Here comes E-cash, but Washington isn't ready

David Peyton

We've just about gotten used to ATMs and electronic funds transfers (EFT) — banks in New York alone move about $1 trillion a day over the wires among themselves — and now comes digital cash, also known as E-cash.

The problem is that our economic policy-making regime is nowhere near ready for this technological development. But it had better hurry. Whereas conventional EFT took 15 to 20 years to mature to its current state, the new phase will come upon us in one-third the time.

What is E-cash? On-line, it means new payment systems in which at least one party cannot identify another party to the transaction, even as electronic tokens laden with monetary value pass from one to the other. Off-line, it means smart cards likewise value-laden and usable wherever they can be scanned.

Why is all this coming? Because the mathematicians have devised systems that work, businesspeople are looking for new opportunities and consumers are looking for greater convenience. What good will E-cash do? Low-value transactions now are often too costly to be worth it or else require the passage of personal data (your credit-card number) to work. More privacy and enabling low-value transactions such as copyright payments are clear benefits.

Now is the time for Washington to make the policy decisions so the U.S. can realize the benefits and lead the world in this technology application.

Tax reform heads the list. With the debate about overhauling or replacing the income tax heating up, reformers need to consider how different schemes will work under emerging forms of electronic commerce. For example, what form of consumption tax would be least susceptible to evasion with E-cash?

Our financial system isn't prepared for a world of Microsoft, Citibank and U.S. dollars.

Securities regulation may also come into play. There is nothing to prevent banks or other private parties from issuing their own private currencies. Why not payroll-processing companies, especially if they are looking for new business with the federal income tax gone? Why not Microsoft?

Currency rests on public confidence in the issuer. Whom do you trust to inflate his currency less in the next year, Uncle Sam or Uncle Bill Gates? Even if Microsoft dollars managed to be more stable, they would probably trade at a discount to the legal tender that everyone must accept in payment. That will lead to arbitrage and new derivative products.

Banking law and consumer protection will need a second look. Current rules limit consumer liability on lost or stolen wallet cards to $50 if promptly reported. Is that necessary or justified to promote E-cash?

Then there is the issue of export controls, where the U.S. government prohibits the export of encryption to any foreign parties other than banks, U.S. subsidiaries and a few foreign governments. Will the government at least allow non-banks to move currency under encryption? These questions need answers.

The Clinton administration and Republican presidential candidates would do well to put together positions on major macroeconomic policy issues that address the economy's clear movement toward electronic commerce and E-cash.

Peyton is a Washington-based independent consultant on information technology policy. His Internet address is dpeyton@eff.org.

Multimedia migraine: Everybody's got a home page

Michael Schrage

Yes, Notes is a clever — teetering on brilliant — bundle of enterprise software (even if it ain't relational). With aggressive repackaging, bundling and distribution, Notes may even justify the pricey $3.5 billion IBM paid for Lotus. Operating systems for organizations may well be more valuable than operating systems for computers.

So, there is no question that Notes has played a dominant role in defining the dimensions of groupware. And yet, in terms of sheer organizational impact, what happens if we define collaborative computing along a different axis? Let's make the World-Wide Web — not Notes — our groupware infrastructure and play with the possibilities.

Should companies ban family photos and Dilbert comics from employee Web pages?

What happens if everybody in the company has his own Web home page? What happens if every employee at General Electric, General Motors, Procter & Gamble or even IBM has a home page? Talk about decentralization! Talk about a personnel department with a multimedia migraine! The entire dynamic of interpersonal information flow is radically inverted. Looking for birds of a feather becomes a snap — or, at least, a point and click. Finding someone who can translate that fax from Cantonese is far easier. Letting people gracefully know that you used to be a brand manager at Unilever becomes a trifle.

But the questions corporations would confront strike at the very heart of how they now organize themselves. What happens to the way project teams are assembled? Do project managers still solicit resumes via the home page? Or do they not-so-surreptitiously hit on the ones with the "right" key words? Should companies demand that home pages be standardized along certain design and information rules — i.e., no family photos or *Dilbert* cartoons? Or should home pages be as customized and personalized as an individual wants? (After all, why not assume that smart employees will put their best home page forward in a bid to capture the right attention and choice assignments?)

By the way, do managers have the right to "hot link" their subordinates' home pages to other sites that discuss performance reviews (encrypted, of course), thus making the home page little more than a quasi-personnel file? Or does the home page "belong" to the individual?

What happens if, after surveying home-page hits, the company discovers that certain managers assembling project teams consistently discriminate against women, African-Americans, Asians or foreign nationals? Do we demand that individuals disclose their gender/ethnicity in their home pages? But isn't it odd-looking if people *don't* put their photos on their home page? One can practically hear the drool of EEOC attorneys dribbling down their chins in salivary anticipation of cybersuits to come.

We don't have to confine the home-page concept to individuals, of course. We can create Web sites for everything from individual projects to entire divisions. We can hypertext the entire corporation. Heck, why not insist that potential suppliers supply their home pages as well so that we can check out one another?

The nifty aspect of these questions is that they only barely qualify as hypothetical. Whether you collaborate with Notes or with the World-Wide Web, these are precisely the kinds of issues that today's organizations will have to explicitly confront tomorrow.

Schrage is a research associate at the MIT Media Lab and author of *No More Teams! Mastering the Dynamics of Creative Collaboration*. His Internet address is schrage@media.mit.edu.

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COMPUTERWORLD

Vaporware tactics elicit mixed views

By Stuart J. Johnson

Vaporware – software announced long before its delivery – does not appear to be hazardous to user health, according to an exclusive *Computerworld* survey.

The survey of 100 information systems professionals last week revealed that 80% of those polled said announcements of product plans are useful for decision-making purposes. Yet 88% agreed that such early information from major vendors such as IBM and Microsoft Corp. can have a market-freezing effect for smaller competitors (see chart, page 147).

And while federal Judge Stanley Sporkin has made a major issue about vaporware from Microsoft, which he contends has a harmful effect on the market, users don't seem to care.

"The earlier I know [what's coming], the better, but we still buy for today's needs knowing that things will change tomorrow," said Jerry Clement, a staff technician in the legal technical document group at United Airlines in South San Francisco.

However, users are absolutely more interested in near-term product deliveries than far-away ones. Fully 91% of those surveyed preferred to hear about product ten-

Vaporware, *page 147*

Reality check

Full benefit of Plug and Play technology is two years away

By Jaikumar Vijayan and Michael Fitzgerald

Plug and Play – one of the most highly anticipated features of Windows 95 – will be more promise than reality when the operating system ships later this year, several vendors, including Microsoft Corp., confirmed last week.

Older or legacy PCs will be unable to take full advantage of Plug and Play, which is supposed to give users hassle-free, automatic peripheral device detection and configuration. And corporate users will face a comprehensive overhaul or upgrade of their existing systems in order to use it.

There is "going to be a disconnect between people's pie-in-the-sky expectations for Plug and Play" and reality, said Scot Stelter, a product manager at Adaptec, Inc., a leading manufacturer of SCSI devices in Milpitas, Calif.

In fact, it could be at least two years before Windows 95 users can count on full Plug and Play capabilities with any device or peripheral they buy.

Several users contacted last week were not up in arms about the problem but said it was a concern.

"The Plug and Play feature is a real advantage for Windows 95, [and it] certainly would be viewed as a downside if a card didn't work with the spec," said Glenn Jurmann, a technical specialist at Baxter Healthcare Corp. in Deerfield, Ill. Still, Jurmann said that while "Plug and Play would make life a lot easier," other issues with Windows 95 were more significant to Baxter.

Even users with Intel Corp. Pentium-based sys-

Plug and Play, *page 14*

IS taps temp execs

By John King

Are you an experienced information systems executive who has been re-engineered out of a job years before you planned to retire?

Does the idea of earning $125 an hour working exclusively on high-level strategic IS projects appeal to you?

If you answered yes to either question, you may want to consider hiring yourself out as an interim IS executive. A growing number of companies are looking to rent rather than permanently employ experienced, executive-level IS professionals.

The current $1 billion U.S. market for temporary technical

Tempa execs, *page 15*

Timely Techies

High-tech executives account for roughly 20% of all temporary workers placed by recruiting firms, according to Kennedy Publications. And the $1 billion market for temp executives is growing by 25% annually.

Distributed computing

IBM/Cisco deal to ease legacy moves

By Michael Fitzgerald and Laura Dilbo

In a major advance for IBM mainframe users, Cisco Systems, Inc. will announce in mid-May that it is embedding IBM's Advanced Peer-to-Peer Networking functionality into all of Cisco's routers, sources said last week.

Cisco support for APPN will aid large corporations trying to migrate from the legacy SNA environment to client/server platforms.

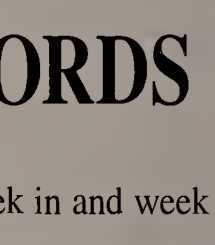
APPN, in conjunction with the LU6.2 networking protocol, is IBM's avenue for connecting SNA systems and LANs. By putting APPN support into Cisco's market-leading routers, IBM is effectively giving SNA users a kind of universal language for distributed computing.

Works for users

IBM and Cisco officials declined to comment on the announcement. But users gave news of the move an initial thumbs-up.

"Depending on how they integrate it with [IBM's] NetView product so you gain the ability to view the total network, that could come in quite

IBM/Cisco, *page 16*



Client/server software heads for MVS territory

By Rosemary D'Amico

IBM's MVS operating system is one old dog that's about to learn some new client/server tricks.

Strange as it may seem, the venerable mainframe operating system is poised to become a key client/server applications platform.

Users and analysts last week attributed the increasing MVS activity to the maturing of the client/server industry.

Some information systems executives also cited a desire to leverage their hardware and software investments, in addition to acknowledging lingering doubts about the

MVS, *page 147*

Newspaper

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23. Dir./Mgr. Sys. Development, Sys. Architecture
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41. Engineering, Scientific, R&D, Tech. Management
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DEPARTMENTAL MANAGEMENT
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70. Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/ Transportation
70. Mining/Construction/Petroleum/Refining/Agric.
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./Retailer
95. Other_____
(Please Specify)

2. TITLE/FUNCTION (Circle one)
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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin. Services
23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management
CORPORATE MANAGEMENT
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DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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LOWER PRICES TO BOOST WIRELESS MARKET, 44

Desktop Computing

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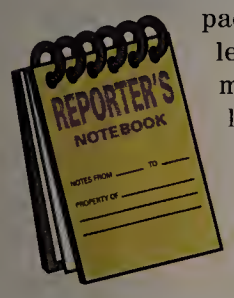
Reporter's Notebook

Guess who's trying to make up with **Intel Corp.** these days? After griping at the chip maker for several months now, **Compaq Computer Corp.** has toned down its angry rhetoric against the Santa Clara, Calif., company. At PC Expo, Compaq confirmed it will buy chips from Intel. And officials from Houston-based Compaq indicated they wouldn't mind buying chip sets and full-fledged motherboards as well. In the staring match between the two companies, it looks like Compaq just blinked.

Citrix Systems, Inc. in Coral Springs, Fla., said it will ship by Aug. 31 its WinFrame for Networks, a **Microsoft Corp.** Windows NT-based package said to provide seamless, remote computing for multiple users simultaneously. Priced at $5,995 for a base configuration of 15 concurrent users, it will allow remote users to transparently run Microsoft's Windows, Windows 95 and Windows NT and DOS applications as if they were local users, Chairman Ed Iacobucci said.



IBM, Apple Computer, Inc. and Novell, Inc. all trotted out their big executives in a show of support for OpenDoc, the not-yet-shipping specification for creating parts that are interoperable between applications. There was no real news, just a demonstration of beta OpenDoc code, which crashed twice while running on the Macintosh. But that minor setback, along with an Apple demonstrator who fainted during the presentation, didn't stop Apple Chairman Michael Spindler from presenting a case for how OpenDoc lowers the barriers of entry for commercial software developers.

—Jaikumar Vijayan, Lisa Picarille

Customers demand easier Unix, Windows integration

By Jean S. Bozman

User frustration over clunky interfaces between Windows applications and Unix systems is sparking a move by Unix vendors to set things right.

Engineers, financial traders and other Unix users complain that they must move to PCs to file Windows-style reports or receive company-wide electronic mail. Anchored by tens of millions of PCs, Windows desktops far outnumber the few million Unix desktops worldwide.

Users with both a Unix workstation and a Windows PC find themselves frustrated by the clutter of machines on their desks. Accordingly, Unix systems vendors and software companies are making it easier to integrate the Unix and Windows environments, including clients and servers (see chart).

Major players

Last week, SunSoft, Inc. in Mountain View, Calif., enhanced its Wabi Windows-on-Unix translation software and SolarNet software, which ties Windows PCs to Unix servers. And Hewlett-Packard Co. recently introduced its HP 500 Windows application server for Unix users [CW, June 26]. Much of the software works by putting Windows applications directly on Unix workstations or Unix terminal screens.

Microsoft Corp. also is aware of users' desire for greater integration between Windows and Unix and is working with partners such as Digital Equipment Corp. and AT&T Global Information Solutions to develop links. Interoperability packages will also be sold by independent software companies, Microsoft said.

The flood of Windows-compatible products — especially from Unix systems vendors — may please some users, but it doesn't impress everyone.

"I think what we're seeing is Unix systems vendors grasping at straws," said Paul McGuckin, a research vice president at Gartner Group, Inc. in Santa Clara, Calif. "It's almost Windows-compatibility mania." Over time, he said, Microsoft Windows NT servers will catch up with Unix servers in scalability and could be substituted where Windows compatibility is important.

The cross-platform software could be a tacit admission that Unix vendors' bid to hold on to a Unix desktop interface has failed. Windows is the clear winner on corporate desktops, even at most Unix sites, said Jack Roberts, an analyst at Dataquest, Inc. in San Jose, Calif. That is happening even as Unix ven-

Integration, *page 45*

Crossover

Products that link Unix and Windows

VENDOR/PRODUCT	FUNCTION
Hummingbird Communications EXceed	PC-based X Window System software that links PC clients with Unix servers
SunSoft SolarNet	PC-LAN connectivity software allows Unix servers to support many Windows PC clients
Hewlett-Packard HP 500 Windows application server	Provides Windows applications to Unix workstations and X terminals
Tektronix WinDD	Native Windows NT support for X terminals and Unix workstations
SunSoft Wabi	Translation package turns Windows system calls into Unix system calls
Insignia Solutions SoftWindows	Emulates Windows features and functions in Unix

Lotus lures buyers with assurance plan

By Suruchi Mohan

Lotus Development Corp. last week announced a plan to help customers of its Windows 3.1 desktop applications migrate to Microsoft Corp.'s forthcoming Windows 95 for free.

The Buyer's Assuranee Plan — available through the end of December — is seen by industry analysts as an aggressive move by Lotus to retain, and possibly expand, its user base.

"It is an attack on Microsoft's and Novell's installed base," said Bob Flanagan, director of workgroup strategies at The Yankee Group in Boston. "This promotion will preserve their installed base," he said.

Under terms of the deal, the upgrade is free, although users must pay a shipping/handling and media fee. Users also have to send a product registration card and proof of purchase directly to Lotus. In turn, Lotus will send users a coupon that will be valid until June 30, 1996.

Some customers of Lotus desktop products said they do not see any benefits to be derived from the plan. "We already bought [Windows 3.1 applications] under prior arrangements," said Walter Walzick, chief technology officer at Dickstein, Shapiro & Morin, a Washington-based law firm. "We're not going out to buy. Under our contract, we pay an annual fee and get all free upgrades anyway."

A good deal

But for users who plan to buy Windows 3.1 applications, this is a good offer, Walzick said. "One of the hardest things is the upgrade cycle. If [you can go] from one release to another without paying the extra price, it's a good investment," he said.

Adam Dubroff, president of Inn-formation Systems, Inc. in Telluride, Colo., agreed that the Buyer's Assurance Plan offers a good deal. The incentive to buy will be especially strong in Notes environments because of the tight integration between the desktop applications and Notes, he said.

According to analysts, the upgrade plan will strengthen Lotus' competitive position.

"Typically, they are [on the] defensive," said Chris LeTocq, principal at SoftTracks Software Research in Los Altos, Calif. Usually, he said, Lotus tries to make sure its revenue does not decrease as people hold back on spending while they wait for a new product to be released. With this announcement, "Lotus is aggressive" because it is essentially telling people that when Windows 95 comes out, Lotus will have a product that supports it, he said.

Stronger position

The plan further bolsters the Cambridge, Mass., company's position vis-a-vis Microsoft because it will have applications that work with Windows 95 at the same time as Microsoft.

"In the past, Microsoft has been able to get a jump start," LeTocq said. "Microsoft will be facing the greatest level of competition it has had for quite a while."

While the amount of revenue Lotus would pull in from such a promotion will probably be small, the company hopes to gain revenue down the road by keeping and adding customers, analysts said.

Legent users jittery about vague CA merger plans

By Thomas Hoffman

Two weeks after Computer Associates International, Inc. announced it would buy Legent Corp. for $1.8 billio[illegible] [illegible]ities of merging product lines began raising concerns in some parts of the user community.

CA executives offered scant details about their Legent product integratio[illegible] plans at a joint p[illegible] conference last [illegible] The [illegible]

ciates, but they become absolutely critical to us as a user of these products," he added.

Industry analysts have generally characterized the Legent acqui[illegible] [illegible]st for CA's fu[illegible] [illegible]

software at fire sale prices. In fact, one information systems manager [illegible] Midwestern apparel distribu[illegible] [illegible] he was [illegible]

Proposed CA-Legent union worries users

ENTERPRISE SYSTEMS Key issues: Products; service

BY PAULA MUSICH

Computer Associates International Inc.'s proposed acquisi[illegible] [illegible]ent Corp. caused [illegible] a flag of

tween the second- and third-leading systems-management vendors is unsettling for some IT managers.

"You don't serve the custom[illegible] [illegible]erest very well when you

[illegible] chairman and [illegible]ciates

WORLD

Voracious CA gobbles up Legent

[illegible]ffman and Steve Moore

[illegible] to last week's an[illegible] [illegible]rnational, Inc. [illegible] billion. They

CA's merger with Legent makes users wary

By Elinor Mills

(NEW YORK) COMPUTER Associates International Inc. (CA) last week offered few details on its product strategy in the [illegible] [illegible]osed merg[illegible] [illegible]

means of fleeing CA and its business practices," said Dale Gardner, an analyst at The Meta Grou[illegible] in [illegible]n Va. "Altho[illegible]

"We'll know mor[illegible] merg[illegible] [illegible]

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New batteries need apply

More power, standardization key to advancement

By Mindy Blodgett

Batteries, the things that make mobile users mobile, need to improve if wireless and mobile communications are to advance, according to a report by The Yankee Group in Boston.

The report says the following factors have to come into play to advance the battery market:

- More powerful batteries, including lithium ion, lithium polymer and zinc air, must gain wider use.
- Standardization, such as integrating batteries into a few common sizes, must be implemented.
- Better power management systems for users, such as "smart" batteries — which relay status information on runtime to the portable device — are needed.

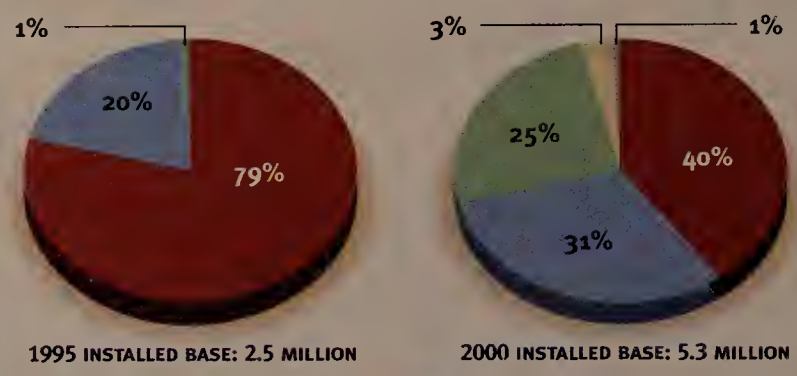
Several other factors make life difficult for the untethered mobile user, according to the report.

One problem is that the more powerful and long-running a battery is, the heavier it is. In addition, spare batteries are often expensive and not readily available, the report found.

"Vendors have to get really serious if these portable devices are really going to take off on the mass market," said Samuel May, an analyst at Yankee.

While nickel cadmium remains the battery of choice through the turn of the century ...

PROJECTED INSTALLED BASE OF BATTERIES IN PORTABLE COMPUTERS AND HANDHELD CELLULAR PHONES



... there are pros and cons to all types of batteries

BATTERY TYPE	PROS	CONS
NiCad	• Inexpensive rechargeable power supply • Gained 50% more capabilities during the past five years	• Short runtime • Heavier weight and low energy storage
NiMH	• 30% to 40% increase in runtime over NiCads • Price expected to drop	• Higher cost compared with NiCad • Loses battery life 1% per day
Lithium ion	• 40% smaller, 50% lighter than NiMH • Longer life	• Sensitive to improper charging • Expensive for OEMs (approximately 20% more per watt-hour)
Zinc air	• Three times more density on an energy-to-weight ratio than NiMH • Two to four times more runtime for portable PCs compared with NiCad and NiMH	• 6 pounds; bulky size makes it a problem for mobile users • Not feasible in cellular telephones
Lithium polymer	• Power benefits similar to lithium ion • Solid, flexible form	• Still in prototype, long-time to market • Lithium will keep initial cost high for OEMs and users

Source: The Yankee Group, Boston

ARDIS' lower prices boost wireless arena

By Mindy Blodgett

One of the many culprits blamed for the delayed implementation of the wireless revolution has been usage costs.

So the recent announcement of new pricing programs by ARDIS Co., a wireless radio network provider in Lincolnshire, Ill., is a smart move, according to industry observers. The programs offer lower airtime costs for software application developers and wireless electronic-mail users.

"While pricing is not the whole problem, it's definitely one of the things people complain about," said Roberta Wiggins, an analyst at The Yankee Group in Boston. "It is also an attempt to generate more application development — and this may encourage some to experiment."

Lower prices

ARDIS' Wireless Software Developer Program, a developer's initiative first offered in January, will now cap airtime costs for application developers at $40 a month per development hardware unit.

In addition, ARDIS is offering users of Motorola, Inc.'s AirMobile software for Lotus Development Corp.'s CC:Mail new pricing programs that start at $19.95 per month. Mobile users who heavily use wireless messaging can obtain virtually unlimited airtime for $75 per month. However, both programs run only through year's end.

AirMobile is wireless middleware that gives mobile notebook users E-mail access to a number of networks, including ARDIS and the Mobitex network from RAM Mobile Data USA, L.P.

Rob Euler, ARDIS senior vice president of corporate strategy, said the developer program is meant to encourage applications for the growing availability of PC card wireless modems and to speed adoption of personal digital assistants.

A spokesman for RAM Mobile Data in Woodbridge, N.J., said the network currently offers a similar virtually unlimited airtime usage package for E-mail users, priced at $135 per month. RAM Mobile Data said it will announce new pricing programs this month, which are also aimed at building interest in AirMobile.

Briefs

Remote access products ship

Emulex Corp. in Costa Mesa, Calif., this month will start shipping its ConnectPlus Pro product, while **MobileWare Corp.** in Dallas has already started shipping an updated version of its remote software. ConnectPlus Pro is a remote access server based on PCMCIA technology. It provides dial-in network access for remote users running under Unix and Novell, Inc.'s NetWare. The server is compatible with several TCP/IP packages, including NetManage, Inc.'s Chameleon and Novell's LAN Workplace. The list price on the eight-port ConnectPlus Pro is $2,895. Meanwhile, MobileWare 2.5 will support server connections to any X.25-compatible packet network as well as connections to any NetBIOS-compatible network. The base price will be $1,400 per server.

Sales pack gives E-mail access

TeleMagic, Inc. in Dallas last week started shipping TeleMagic Professional for Windows, customizable sales automation software. The software will give users the ability to track business leads while storing complete customer information. It supports several automation applications and provides access to internal electronic mail, broadcast faxing capabilities and mail merging via interfaces with word processors. The product, which costs $249.95, is upgradeable to Telemagic Enterprise, the company's Windows sales automation system.

Canon's 7-pound PC debuts

Canon Computer Systems, Inc. in Costa Mesa, Calif., released the 7-pound PN 100, which is based on the PowerPC 603E. The notebook, which uses Microsoft Corp.'s Windows NT operating system, will ship with 16M bytes of RAM, an 810M-byte hard drive and a 10.4-in., active-matrix color screen. Prices start at $6,500.

Real estate agents hunt homes with handheld help

By Jaikumar Vijayan

Orange County, Calif., real estate agents could soon find nailing down new listings a lot easier with a little magic from Sony Electronics, Inc. and Mobile Products, Inc.

The two firms recently announced a mobile application that lets real estate agents in Orange County remotely access, pull down and store property information on Sony's Magic Link handheld personal communicator. Users can also communicate via fax, electronic mail and paging as well as access commercial on-line services.

"It's a tremendous time-saver. It's only slightly larger than a paperback and very user-friendly in terms of the use of graphical icons" to represent key functions, said John Wagner, an agent at Remax, Inc. in Monarch Beach, Calif.

The application is based on Mobile Products' Mobile Multiple Listing Service (MLS) software, which lets real estate agents access the Orange County MLS database.

Agents can access and select the listings using different parameters ranging from a general location search to client-specific searches. These can be based on requirements such as location, price, number of rooms and other physical details relating to the property. Previously, agents carried around printed property listings published every two weeks.

Integration

CONTINUED FROM PAGE 41

dors ship a Common Desktop Environment user interface for all Unix desktops, several analysts said.

Users, meanwhile, are simply trying to overcome some very practical problems, and quickly.

Sales figures

Often, Windows PC users in large companies who need to access applications and data hosted by Unix servers do so with PC-X server software packages priced from $300 to $500. International Data Corp. figures show that 460,144 PC-based X Window System software packages were sold worldwide in 1994, swamping the 258,843 X terminals sold to display Unix server data.

Practical application

Mark Abbott, a professor of oceanography at Oregon State University in Corvallis, wants to export data from his site's IBM RS/6000 Unix servers to Windows PCs to create reports and presentations.

At FedEx Corp. in Memphis, users are turning to Tektronix, Inc.'s WinDD software to put Windows NT server applications on customer service representatives' Unix screens, information systems managers said.

At the University of Michigan, the Unix server is being pulled closer to Windows applications with networking software. For the university's Windows users, the Unix server "could be where your database is, where your World-Wide Web server is or your business logic server is," said David Richardson, a manager at the school's Center for Information Technology Integration.

New Products

Digital Equipment Corp. has announced Mobilizer for Windows, a tool for mobile computer users.

According to the Maynard, Mass., company, Mobilizer for Windows integrates office mail, file and database applications and mobilizes them without additional programming for remote laptop use. It also allows simple access to an office network LAN and automates remote connections over wired and wireless services for mobile users dialing into an office network.

Mobilizer for Windows supports any 486 processor or above with at least 8M bytes of RAM. It operates on Windows 3.1 or 3.11 and Windows for Workgroups 3.11.

Mobilizer for Windows costs $299.

▶ *Digital*
(508) 493-5111

SunRiver Data Systems, Inc. has introduced the SunRiver CXLE 3531 X-Station, an integrated telephony interface that combines desktop, audio, video and telephony capabilities over a LAN to let users perform several support functions from one workstation.

According to the Austin, Texas, company the CXLE 3531 X-Station lets users match incoming telephone calls with customer account information using the headset connector while simultaneously accessing multiple databases and applications.

The CXLE 3531 X-Station package includes SunRiver's modular XEasy 3.0 software. The software provides terminal emulation, security capabilities, flash remote file services and installation script.

Pricing for the SunRiver CXLE 3531 X-Station starts at $2,845.

▶ *SunRiver Data Systems*
(512) 346-2447

Seagate Technology, Inc. has announced Medalist 2140 (2.1G bytes) and Medalist 1640 (1.6G bytes), high-capacity disk drives.

According to the Scotts Valley, Calif., company, Medalist 2140 and Medalist 1640 combine large capacity with a 5,400-rpm design. They feature average seek times of 10 msec, 5.56-msec latencies and 256K-byte multisegmented caches. The drives have average sustained data transfer rates of more than 3.5M byte/sec.

The drives were designed for data-intensive businesses and multimedia and entertainment applications.

Single-unit evaluation pricing for Medalist 2140 starts at $695. Single-unit pricing for Medalist 1640 starts at $495. Volume pricing is also available.

▶ *Seagate Technology*
(408) 438-6550

The Agfa Division of Bayer Corp. has introduced Studio Scan IISI, a color flatbed scanner.

According to the Ridgefield Park, N.J., division, Studio Scan IISI is a low-cost, entry-level scanner. It is available for Macintosh and PC users and offers batch scanning and electronic sharpening, descreening and tone correction during the scanning process.

StudioScan IISI features optical resolution of 400 by 800 pixel/in. and comes bundled with Adobe Systems, Inc.'s Photoshop LE editing software and Agfa's color management software with default color links.

The StudioScan IISI for the Macintosh features FotoFlavor, a color correction tool on CD-ROM. The PC version includes an EasyPlug SCSI card for simplified PC installation.

Pricing for the StudioScan IISI scanners starts at $950.

▶ *Agfa*
(201) 440-2500

Landmark Research International Corp. is shipping MagnaRAM, memory-expanding software for Windows.

According to the Clearwater, Fla., company, MagnaRAM helps users with 4M- and 8M-byte systems run more and larger applications simultaneously by boosting the amount of available Windows memory. It increases available Windows memory by using a Windows driver to compress RAM and Windows virtual memory.

MagnaRAM is compatible with memory manager software, including Qualitas, Inc.'s 386Max and Quarterdeck Office Systems, Inc.'s QEMM. MagnaRAM works on 386-based PCs or higher, running Windows 3.1 or later in enhanced mode with 4M bytes of RAM or more. MagnaRAM costs $129.

▶ *Landmark Research*
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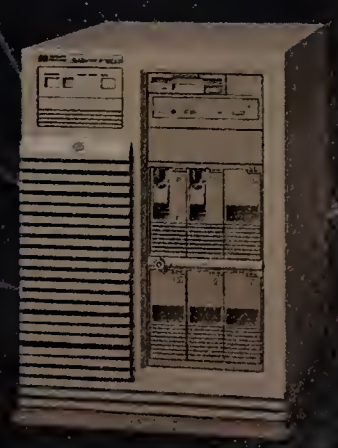

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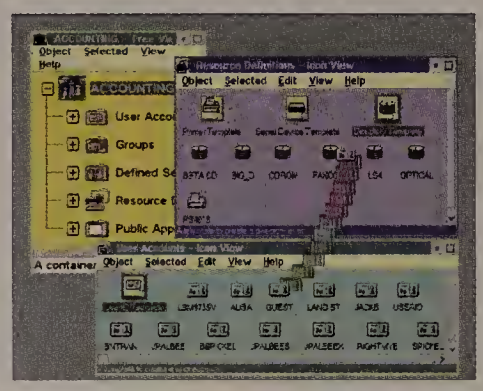

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Banyan fertilizes Vines

Universal StreetTalk attempts to move into mainstream; software developers sign on

By Laura DiDio

Universal StreetTalk, Banyan Systems, Inc.'s unbundled directory services offering, recently began initial shipments.

StreetTalk was the crown jewel of Banyan's Vines network operating system. Earlier this year, Banyan announced it would unbundle StreetTalk, renaming it Universal StreetTalk, and give it away in an attempt to make it a de facto industry standard [CW, Jan. 16].

Universal StreetTalk provides large enterprise networks with a single network log-in capability enterprise-wide, distributed management capabilities and an advanced search engine that enables network administrators to search for users and network objects by name or attribute.

Banyan recently gained support for Universal StreetTalk from four more independent software developers (see chart).

The release of Universal StreetTalk is the latest in a series of moves by the Westboro, Mass., company to pull away from its Vines roots and become a network services provider.

Analysts and the new independent software vendors that will write for the platform had high praise for the technical aspects of Banyan's initiative but were reserved about its ability to garner enough industry support for Universal StreetTalk to make it a mainstream product.

Drew Wolff, director of product management at Microsystems Software, Inc. in Framingham, Mass., said the availability of Universal StreetTalk "will enable us to develop more robust applications and get them to market faster." Microsystems Software, one of the latest vendors to sign on with Universal StreetTalk, makes CaLANdar, a group scheduling product, and software metering and monitoring tools.

Analysts gave cautious kudos.

"No one has ever denied that Banyan has good technology, but it's equally clear the company doesn't have the products, channels or visibility to achieve its goal of becoming a network services provider. Banyan still has a lot of basic plumbing to work on," said Tim Sloane, director of messaging applications at Aberdeen Group, Inc., a Boston consultancy.

And then there were ...

Banyan recently signed up the following four developers, bringing the total to 80 software companies that will support the Universal StreetTalk platform:

- Sybase
- Vmark Software
- Microsystems Software
- Campbell Services

Redwood plan expected to beef up systems management for non-Vines environments

By Patrick Dryden

Banyan Systems, Inc. expects to provide its enterprise network and systems management technology to environments other than Vines as soon as next year, company officials said last week.

More specifically, Westboro, Mass.-based Banyan is increasing its emphasis on the management portion of Redwood, a three-year plan announced last month that targets new capabilities first for users of the Vines network operating system and then for those relying on other distributed environments.

Vines and more

For example, work is well under way on intelligent agents and a suite of management tools that will help monitor any network's links and systems. Banyan will explain to attendees at its technical conference this month in Orlando, Fla., how vendors and in-house developers can tap into these functions on Vines and other networks.

Vines has gained an avid but small following by supporting thousands of servers and users through built-in directory, messaging and management services. Now that competing networks have grown so large, some administrators are turning to Banyan's newly independent directory service for help tracking widespread users and resources.

Next on Banyan's agenda is freeing the management services built on the Distributed Enterprise Management Architecture (DeMarc), which was integrated with the latest Vines, Version 6.0. DeMarc integrates many functions on Vines networks with standard management consoles. Now Banyan seeks a broader market.

Redwood branch

Last month, Banyan announced Redwood, a three-year plan to address enterprise network needs. The following initiatives are in development now:

- **MIB Wizard**
  OLE-based browser lets administrators check systems and devices that run a smart agent from any station in the network
- **History Collection Service**
  Agent correlates data from managed components over time to help diagnose problems
- **Automated Task Manager**
  Workflow tool eases routine tasks and detects recurring symptoms to apply known fixes

"The goal is to let administrators run network and system management functions on any station in *any* network instead of on one specific console," said Bill Johnson, vice president of corporate business development at Banyan.

An example of a Vines-based tool is Enterprise Backup and Restore, a storage management service that Banyan plans to launch soon. This op-

Redwood, *page 50*

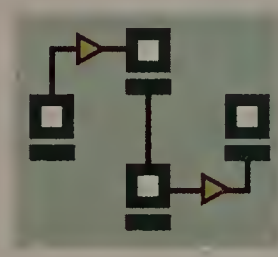
Making beautiful music together

Xerox tool helps users coordinate data, workflow

By Tim Ouellette

Xerox Corp.'s Xsoft division is looking to play to a wider audience with Release 3.0 of its InConcert workflow software.

The new version of InConcert from the Palo Alto, Calif., company adds Windows-based clients and Novell, Inc. NetWare support to workflow software already known for its open architecture and adaptability, according to Connie Moore, director of workflow, document and imaging strategies at BIS Strategic Decisions in Norwell, Mass. Workflow software automates the movement of data and documents to employees who need to work on them.



Users said InConcert 3.0 provides a way to deal with conditions in a work process while being able to change the process on the fly. For example, loan application approvals might need to be routed to different people depending on their dollar value.

"Our first customer was an automotive manufacturer who had a fairly complex workflow, very conditional, lots of ifs and buts," said Kelly O'Connor, manager of marketing at the San Francisco office of FormTek, Inc., a systems integration division of Lockheed Martin Corp. "You can't really do [conditional workflow] with an electronic-mail-enabled workflow tool."

O'Connor said the Windows clients, including a process designer, process manager and task organizer, will let end users modify workflow a lot easier while in a familiar environment.

"We have 51 offices with 51 different ways to do things. This will allow for uniformity and consistency of service," said Al Knott, manager of information technology at Ontario Legal Aid Plan in Toronto.

The NetWare support provided by InConcert 3.0 lets users access data stored in Novell file repositories. The software is not a NetWare Loadable Module, however, but runs off its own Unix server, directing the clients to the proper place in the repository for information.

The InConcert Server costs $14,000. End-user licenses start at $395 for Windows and $995 for Unix, while the basic developer's kit costs $2,995.

Bell service solution keeps it simple

Graphical user interface, imaging system key to solving service woes

By Julia King

Last year, it took Yellow Pages advertising customers a little over two weeks to get a billing or publication problem resolved by Bell Atlantic Corp.'s Directory Services office in Marlton, N.J.

And rarely was the process pleasant — unless you happened to be itching for a fight.

"The customer would call in, and the only commitment we'd make [was] to get back to them. Then, we'd go off and investigate. Two weeks later, we'd strap on the boxing gloves and call back," recalled Walter Kirkland, a Bell Atlantic project manager.

Needle in a haystack

Then, investigating a billing claim typically involved searching an impossibly complex, 8-year-old VAX-based database using a series of even more complex and arcane search codes and techniques. Tracking down publishing errors meant ferreting out handwritten, paper-based advertiser copy sheets and microfilm-based records on the region's 500,000 customers.

Today, by contrast, the Marlton office — which serves as a pilot site for all of the publishing unit's information systems-based customer service initiatives — resolves 100% of all customer claims in less than half a day. On average, the office receives about 100 calls daily.

Dialing for dollars

Publishing Yellow Pages directories is a cutthroat business these days, down from double-digit annual growth rates in the late 1980s to about 3% per year today. The $15 billion industry's biggest players are the seven Baby Bells and GTE Corp.

Two relatively straightforward technologies — which are now being rolled out to the company's other customer service locations — account for the dramatic decrease in turnaround time.

The first is a graphical user interface (GUI) that was developed in-house to link branch offices' Unix-based servers and the main VAX-based customer database.

The other is an imaging system, which was installed in January by Lockheed Martin Information Systems and Technologies in Valley Forge, Pa. The system scans all paper documents, then stores them in a central repository that is accessible to representatives from the X Window System terminals on their desks. All microfilm records have also been converted.

Neither of the systems is exactly rocket science. The reason they work so well is because both were designed with a lot of input from customer service staffers who know customers best, said Peg Lynch, a customer service systems staff manager and the user representative on the systems design team.

For example, nothing irritates a customer more than when a service representative does not have all the information necessary to settle a dispute, Lynch said.

So today, representatives using a mouse can point and click to access and, if necessary, change billing information in the VAX database. Any changes are then reflected on the customer's next statement.

Before the GUI was implemented, it took as long as three months for changes to show up on customers' statements, said Deborah Patterson, customer service manager.

Dropping the gloves

The imaging system is equally customer-friendly, Patterson said.

A prime example is its on-line fax capability, which enables a representative to access an electronic copy of the customer's original advertising copy sheet and fax it to the customer as they are talking on the telephone.

Patterson said the company intentionally exposed office workers to the technology slowly, coupling training on the new systems with communications training.

"Now, as opposed to fighting with customers, we're asking the proper questions and getting to exactly what the problem is," she said.

Redwood

CONTINUED FROM PAGE 49

tion lets administrators back up any server or station across a Vines network to any station equipped with a tape drive instead of dedicating one system to this purpose.

"Banyan did the right thing by focusing first on their own customers before trying to make DeMarc a stand-alone product," said Rick Villars, program director at International Data Corp. in Framingham, Mass.

"They'll bring a lot of value to enterprise management from their directory facility, one of the first databases to link user and configuration information and tools," Villars said. "This should work better with that StreetTalk directory, but the functions can be valuable purely from an administrative standpoint."

Tools to come

Among the management products being developed for Vines and other networks are the following:

- An automated task manager will help limited staff perform routine, time-consuming jobs such as inventory and updates as well as apply fixes to recurring problems.
- A historical collection service, unavailable with basic monitoring via the Simple Network Management Protocol, will help administrators analyze data gathered from their networks over time, Johnson said.
- The MIB Wizard tool will help administrators browse the Management Information Base files that provide status and performance information about systems and internetwork devices.

MIB Wizard will use Microsoft Corp.'s OLE technology — an interface that lets applications communicate across networks — to reduce network traffic and enable management of all components of a network, Johnson said.

David vs. Goliath?

"Banyan may finally do something right," said Dave Cappucio, vice president of Gartner Group, Inc., a Stamford, Conn., consultancy.

Maybe so, but others say Banyan must hurry to enter the platform wars.

Gartner Group forecasts that 70% of major companies will choose an enterprise network management solution in the next 12 to 18 months from an entrenched group: Hewlett-Packard Co., IBM or SunSoft, Inc., with only Cabletron Systems, Inc. seen as offering a challenge.

Banyan offers a lot of strengths, said Rick Villars, program director at International Data Corp. in Framingham, Mass., but must break its Vines-only perception. "They must position themselves as a distributed management company, not someone who wants to sell a network operating system. And they must get more partners."

— Patrick Dryden

New Products

VideoServer, Inc. has introduced Model 2004 MCS, a multimedia conference server.

According to the Lexington, Mass., company, Model 2004 MCS supports up to eight conference end points and has three hardware slots that accept network interface cards, inverse multiplexer bandwidth management cards and VideoServer's BPU conference cards. It supports conference transfer rates from 56K bit/sec. up to full T1 and E1. Director control is supported through an external workstation.

Model 2004 MCS allows connections between conference end points on different networks and can connect to all network providers in North America, the company said.

Pricing for Model 2004 MCS starts at $25,000.

▶ *VideoServer*
(617) 863-2300

Workgroup Technology Corp. recently announced CMS/Pro 3.0, a module for product data management and workflow solution software.

According to the Lexington, Mass., company, CMS/Pro 3.0 manages Parametric Technology Corp.'s Pro/Engineer configurations in an open, heterogeneous computing environment, using standard SQL databases from Oracle Corp. and Sybase, Inc.

Design teams can use CMS/Pro 3.0 to collaborate on projects and share designs, assemblies and subassemblies. CMS/Pro 3.0 links Pro/Engineer files with other file types, including design analysis, manufacturing and process control information.

CMS/Pro 3.0 features a rename function that allows the name modification of a component stored in Workgroup Technology's CMS workflow solution software, add and check-in functions, a logic function for instance recognition and configuration screens.

It is compatible with Pro/Engineer 14 and runs on Hewlett-Packard Co., IBM and Silicon Graphics, Inc. Unix servers, with Unix, Windows and Mac OS clients.

CMS/Pro 3.0 costs $995 per concurrent user.

▶ *Workgroup Technology*
(617) 674-2000

Microtest, Inc. has introduced DiscPort Pro, a high-performance CD-ROM mini-server that provides CD-ROM networking capabilities to Novell, Inc. NetWare users.

According to the Phoenix company, DiscPort Pro is a hardware/software combination that lets network administrators provide CD-ROM access to workgroups or anyone needing to share CD-ROMs on the network.

The product can be placed anywhere on the network and includes two SCSI ports, allowing up to 14 quad-speed CD-ROM drives to be attached.

DiscPort Pro ships with DiscView Pro, software that lets users on a network see and access a library of CD-ROMs as NetWare volumes or subdirectories. Users can also access all CD-ROM applications on the server.

DiscPort Pro costs $1,595.

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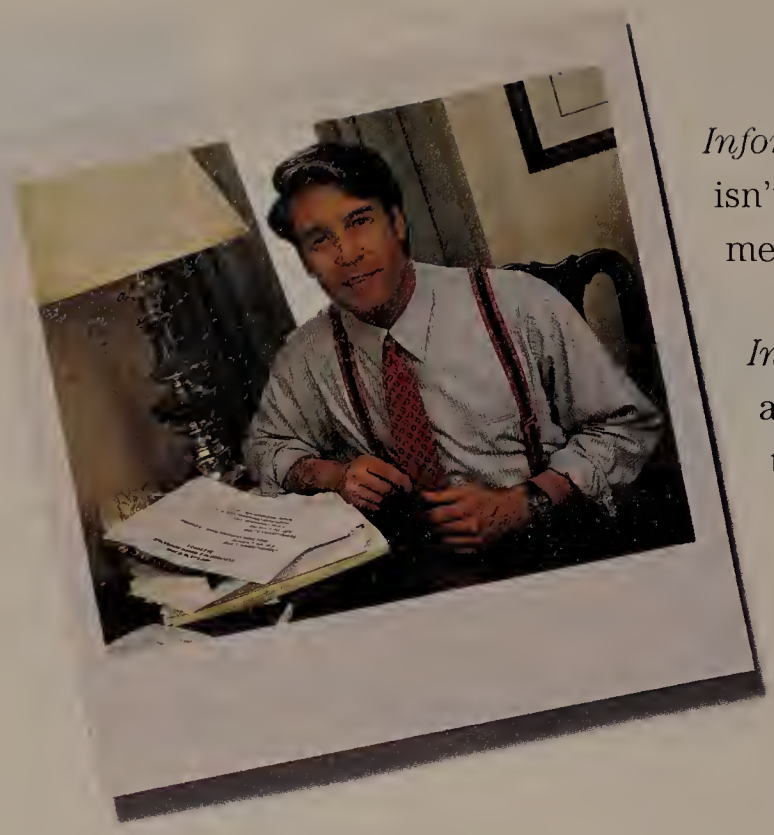

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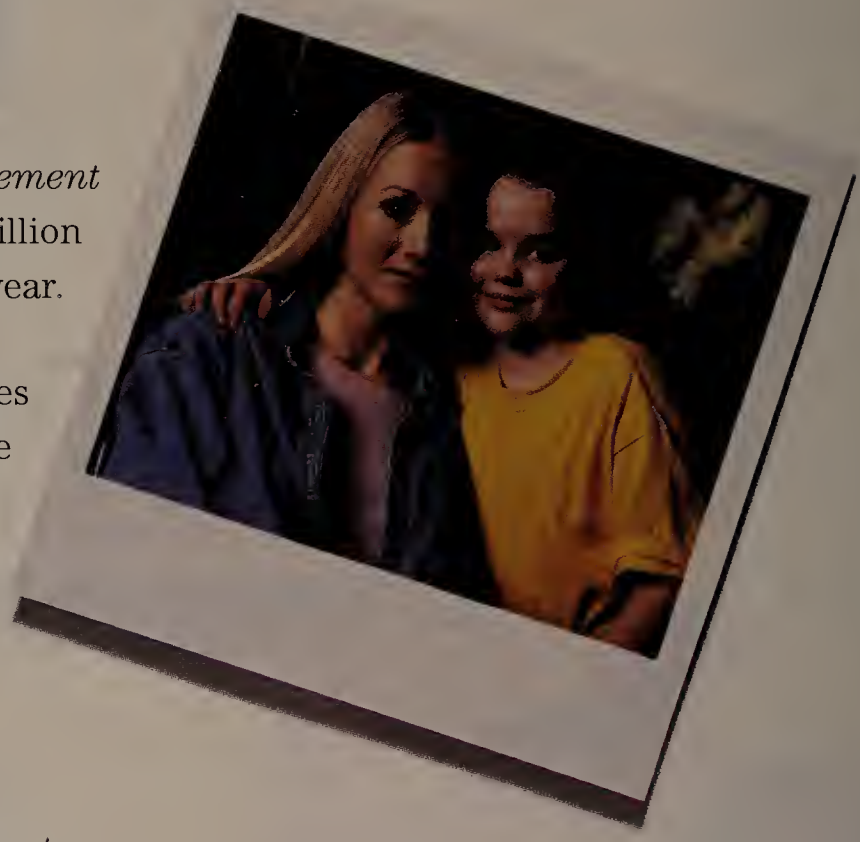
messages every day.

Information management
also helps Tom Welch confirm that
the big deal went through.



Information management
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Information management also makes
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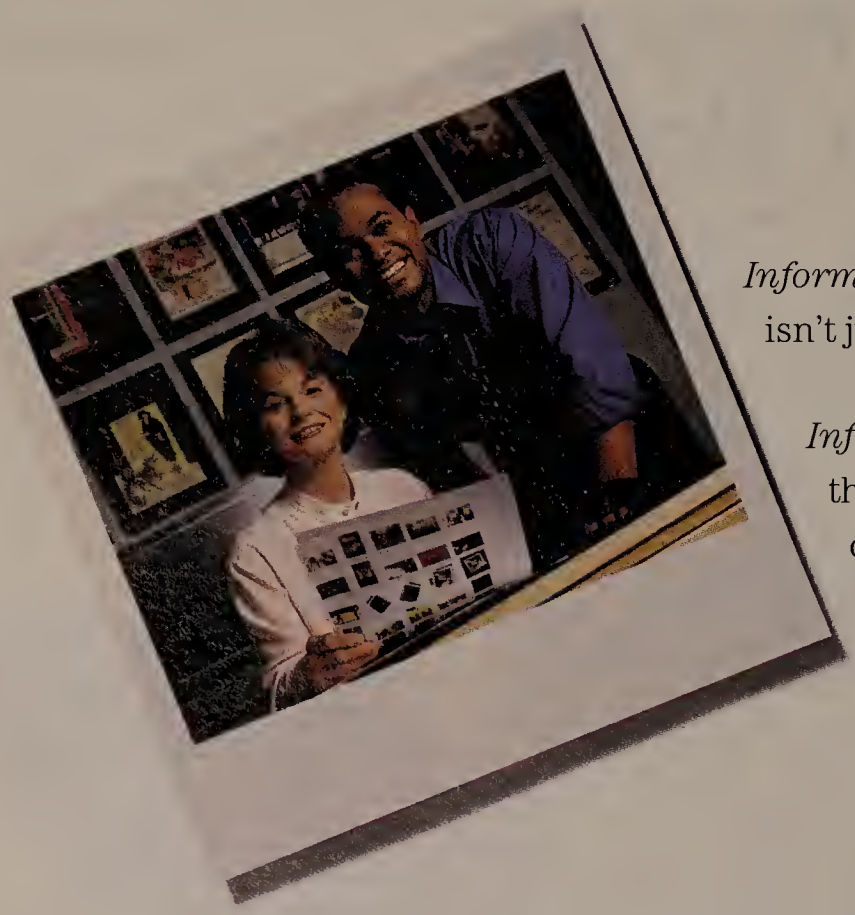

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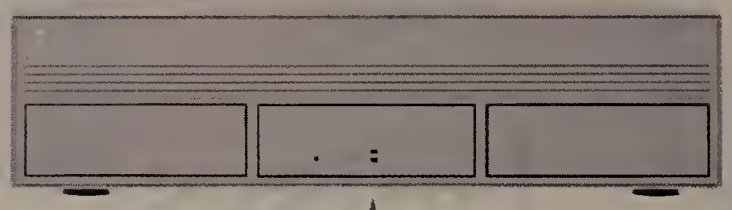

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Congress considers telecom deregulation

By Neal Weinberg

Telecommunications managers are pushing Congress to rip down all regulatory barriers, arguing that unfettered competition for corporate dialing dollars will result in lower costs and quicker implementation of new technology.

The Senate has approved a bill that would allow all the players — Baby Bells, long-distance carriers and cable companies — to jump into one another's markets. The House is refining its version, and a final bill could be on President Clinton's desk by the start of summer recess Aug. 4.

No one can say at this point exactly what the final legislation will look like, but users and industry analysts seem pretty confident that a telecommunications reform bill will pass this year — and that the industry will never be the same.

Waiting game

Bob Galovic, director of telecommunications and operations at the American Automobile Association in Orlando, Fla., is impatient. "I believe it's time to do something," he said. "It's appropriate to open the door to more competition; it should help the marketplace."

Galovic said the price and quality of long-distance service improved when AT&T Corp. faced competition. He says the same thing will occur when the Baby Bells have to vie for local business.

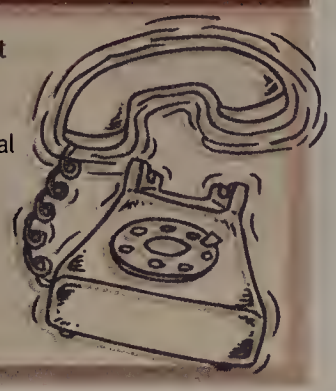
"From the point of view of new technology, it's going to be very positive," added Bob Larribeau, president of Larribeau Associates, a San Francisco-based consulting firm. He said that when new players enter the local market, they will have to do more than compete on the basis of price; they will have to offer new services.

Telecom, *page 56*

Telecom shake-up

Congress is considering a bill that would do the following:

- Deregulate cable TV rates and allow cable companies to sell local phone service
- Allow regional Bell operating companies to sell long-distance service
- Allow long-distance carriers to offer local service



Sprint runs rings to protect service

By Neal Weinberg

Sprint Corp. has completed the initial phase of its $350 million project to build a nationwide system that will restore telephone service in 60 milliseconds in the event of a cable cut or electronics failure.

The goal is to offer companies that use telephone lines to transmit mission-critical data the security of uninterrupted connection, according to Rick Malone, principal at Vertical Systems Group in Dedham, Mass.

Sonet transmission technology	Expands bandwidth to accommodate voice, data and video at speeds up to 2.5 billion bit/sec.
Sonet rings	Bidirectional rings that automatically reverse the direction of the transmission in the event of a line break.

The Westwood, Kan.-based company announced last week it had completed 24 of 43 Synchronous Optical Network (Sonet) rings and created a transcontinental link between New York and San Francisco. The company said it plans to finish all 43 rings by 1998.

Stop and turn around

The bidirectional rings automatically reverse the flow of voice, data, image and video transmissions and reroute them to the proper destination in the event the ring is breached.

Beth Gage, a broadband consultant at TeleChoice, Inc. in Verona, N.J., said Sprint is building its rings with four bands of fiber instead of the typical two bands, which provides added protection.

"That's the architecture of the future," Malone said. "All carrier networks in the future will be designed this way."

Because Sonet rings are part of an upgrade to the infrastructure and not a new service, users are unaware that the rings are in place, and there is no additional charge, he said.

Clutch system

Competitors are deploying the technology in various combinations of rings around major metropolitan areas that are connected by linear Sonet. What differentiates Sprint is its intention to create an entire network of rings.

The system had it first trial by fire on May 7 when a washout severed the line between Fort Worth, Texas, and Kansas City, Mo. The company reported that service was back up within 60 milliseconds.

When Sprint completes its connection from New York to Los Angeles in July, it will have deployed Sonet rings through one-third of its total U.S. network.

System keeps solar cars on track

By Mindy Blodgett

Future Phineas Foggs might find their race around the world facilitated by a newly developed advanced location and communication system.

The system, which combines cellular, global positioning and satellite technologies, was developed for Sunrayce 95, a biennial intercollegiate competition that ended last week. Sunrayce 95 pitted 40 solar cars in a 1,150-mile race from Indianapolis to Golden, Colo.

The system, designed by General Motors Corp. subsidiaries Hughes Network Systems, Inc. (HNS), Delco Electronics Corp. and Electronic Data Systems Corp., tracks cars for safety reasons and for regular updates on the race.

This is the first time the three technologies have been combined to track a car race, according to event planners.

Full coverage

Patrick Summers, a public affairs administrator at the National Renewable Energy Laboratory in Golden, one of the sponsors of the event, said the sophisticated system was devised to supplement the cellular network, which does not cover the entire distance of the race.

In the previous two races, cars were tracked using a combination of checkpoints, cellular phones and radio contact.

According to C. P. Shankar, assistant vice president of wireless strategic development at HNS, the system is comprised of HNS' M6200 digital cellular phones and DirecPC high-speed digital service, which uses small-dish and satellite technology to transmit data digitally.

An audio and navigation system called Telepath 100, developed by Delco in Kokomo, Ind., provides the location of each car. Once the data is gathered, it is sent over the cellular network on the HNS phones installed in support vehicles to the command center run by EDS in Plano, Texas. There, race information is recorded on a digital map.

The digital map is then sent to DirecPC's hub and the Internet, electronic kiosks located at the finish line and other sites, including the Smithsonian's National Museum of American History in Washington, so people can track the race's progress.

"I predict that in a few years all cars will be equipped with similar systems," Shankar said. "You're going to be able to hit a button in your car when you have car trouble, for instance, and the location of your vehicle will be instantly sent to a command center and help will be sent — just like a home security system."

TOM STRATTMAN/WIDE WORLD

Sunrayce 95, *a biennial intercollegiate car race, featured 40 solar cars guided by a communication system*

Cisco beefs up ATM support

By Laura DiDio

Cisco Systems, Inc. last week said it will enhance Asynchronous Transfer Mode (ATM) support for its Cisco LightStream 100 and LightStream 2020 ATM switches and its high-end 7000 router's ATM Interface Processor.

The products will support many features including point-to-multipoint signaling, which eliminates the need to install separate leased-line circuits to run broadcast applications such as multimedia. Cisco will also support LAN emulation, which will allow higher-layer internetworking protocols to run unmodified on an ATM network.

In addition, the company will add support for the Dynamic Interim Inter-Switch Signaling Protocol and the Interim Local Management Interface. The former will enable the LightStream switches to set up connection paths and map user and network device addresses across enterprise networks. Both obviate the need for network administrators to perform these tasks manually, said Lawrence Lang, Cisco's director of product marketing.

The features, available in August as part of the Cisco Internetwork Operating System, will make it easier for businesses to build and deploy large ATM networks, Lang added. These networks are crucial for supporting technologies such as multimedia, virtual networking and videoconferencing, he said.

Analysts such as Tam Dell'Oro, principal at Dell'Oro Group in Menlo Park, Calif., agreed. "These announcements [mean] ATM won't just be a backbone technology; Cisco intends to drive it down to the desktop as well," Dell'Oro said.

Good match

Jim Nemchak, director of network services at the University of Colorado Health Science Center in Denver and a LightStream 2020 user, said these features fit the bill in his organization.

"Our internetwork topology is alphabet soup. We wanted an ATM solution that could support multiple LAN protocols, interact with our interface technology and deliver wire-speed throughput. The new functionality in the LightStream 2020 meets all those needs," Nemchak said.

List pricing for the additional features will be announced in August.

Telecom

CONTINUED FROM PAGE 55

And that is what telecommunications managers are clamoring for. "They're mighty slow in deploying frame relay in this part of the country," said Glen R. Finch, telecommunications manager at Region's Financial Corp./First Alabama Bank in Montgomery, Ala. He said deregulation should provide incentives for carriers to roll out those enhanced services.

Finch wants rate relief. "Traditional competition has almost always forced the lowering of prices. That's what we anticipate; good, open competition is going to benefit us by lowering our expenses over the long haul," he said.

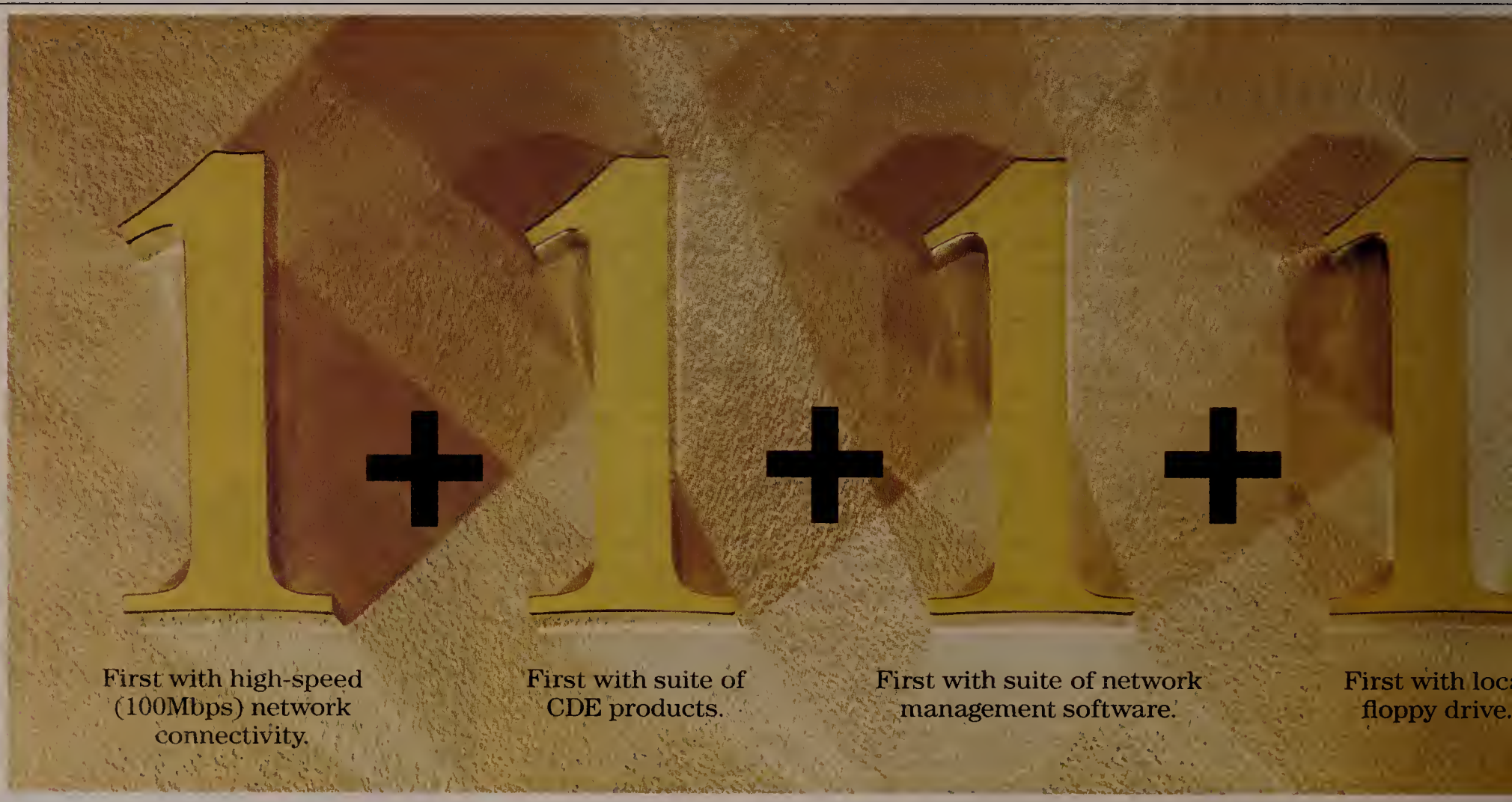
Harry Hurley, manager of telecommunications services at Ceridian Corp. in Minneapolis, said he has problems getting Integrated Services Digital Network to rural employees who want to telecommute. He said he is looking for deregulation to result in carriers offering "more bandwidth and more capabilities."

Kelsey Hill, vice president of telecommunications and technology enhancement at Marriott International, Inc. in Washington, said the bill will offer the flexibility he needs to "put together the right players and the right technology."

Hill said he wants to use fiber-optic capabilities and features such as Synchronous Optical Network to transmit voice, data and video "at reasonable costs." Hill said he would also like to see the carriers coordinate their standards and interfaces so he can mesh LANs and WANs into one seamless network.

Deregulation will "force people to change their approach to technology," he said.

Brian Moir, general counsel at the International Communications Association in Washington, said many details still need to be ironed out. And Rick Malone, principal at Vertical Systems Group in Dedham, Mass., said it is vital that a federal agency monitor the situation to make sure the Baby Bells allow competition across their infrastructure.



The ones to look for in X term

*7 of 9 categories. **Units and revenues. International Data Corporation and X Business Group. ©1995 Hewlett-Packard Company

New Products

Mustang Software, Inc. has announced QmodemPro 2.0 for Windows 95.

According to the Bakersfield, Calif., company, QmodemPro 2.0 for Windows 95 is the industry's first aftermarket online communications software for Microsoft Corp.'s Windows 95. It uses full 32-bit multithreaded technology and includes file transfer, terminal emulation, OLE 2.0 and Telephony Application Programming Interface support features.

QmodemPro 2.0 for Windows 95 costs $129.

▶ *Mustang Software*
(805) 873-2500

Sea Change Corp. has introduced BookWhere, a Windows-based Internet search and retrieval program.

According to the Mississauga, Ontario, company, BookWhere searches libraries on the Internet for research materials and books through preconfigured access to hundreds of library collections.

BookWhere performs multiple simultaneous searches based on a variety of parameters, including author, title, subject, catalog numbers and classification codes.

BookWhere uses Z39.50 search and retrieval software and a graphical user interface. It requires Windows 3.1 or later and at least 4M bytes of memory.

BookWhere costs $39.50.

▶ *Sea Change*
(905) 542-9484

TAC Systems, Inc. has announced Hot-Swap TowerDrive, a multistorage cabinet that can be upgraded on the fly on Novell, Inc. networks.

According to the Huntsville, Ala., company, Hot-Swap TowerDrive can hold CD-ROM, tape, optical and hard drives in any combination.

It can be configured as a self-contained hierarchical storage manager. Hot-Swap TowerDrive is available in three sizes: 7-, 16- and 32-bay models.

Pricing for Hot-Swap TowerDrive starts at $1,200.

▶ *TAC Systems*
(205) 721-1976

Palindrome Corp. has introduced Backup Director 4.0 for NetWare 4.1.

According to the Naperville, Ill., company, this version of Palindrome's backup software features native Novell, Inc. NetWare Directory Services support and a Windows graphical user interface.

Pricing for Backup Director 4.0 for NetWare 4.1 starts at $349 for single-server networks of 25 users.

▶ *Palindrome*
(708) 505-3300

Ungermann-Bass Networks, Inc. has announced GeoLAN/500.

According to the Santa Clara, Calif., company, GeoLAN/500 will ship in September and is a second-generation, 24-port, switched Ethernet hub that will support Asynchronous Transfer Mode (ATM) switching.

GeoLAN/500 supports modules from UB Networks' current Access/One hub. Cards that support ATM at 25M and 155M bit/sec. will be available in the first quarter of next year.

Pricing for GeoLAN/500 starts at $234 per port.

▶ *UB Networks*
(408) 496-0111

Cabletron Systems, Inc. and **Xylogics, Inc.** have jointly produced MicroCS.

Cabletron in Rochester, N.H., and Xylogics in Burlington, Mass., said MicroCS is a module that adds communications server capabilities to Cabletron's MicroMMAD stackable hub.

MicroCS costs $2,695 as an upgrade module and costs $7,695 if it is preconfigured as a remote access hub.

▶ *Cabletron*
(603) 332-9400
▶ *Xylogics*
(617) 272-8140

Apexx Technology, Inc. has started shipping the EtherChain Network Adapter, a product for connecting IBM-compatible laptop PCs anywhere on a 10Base-T Ethernet network.

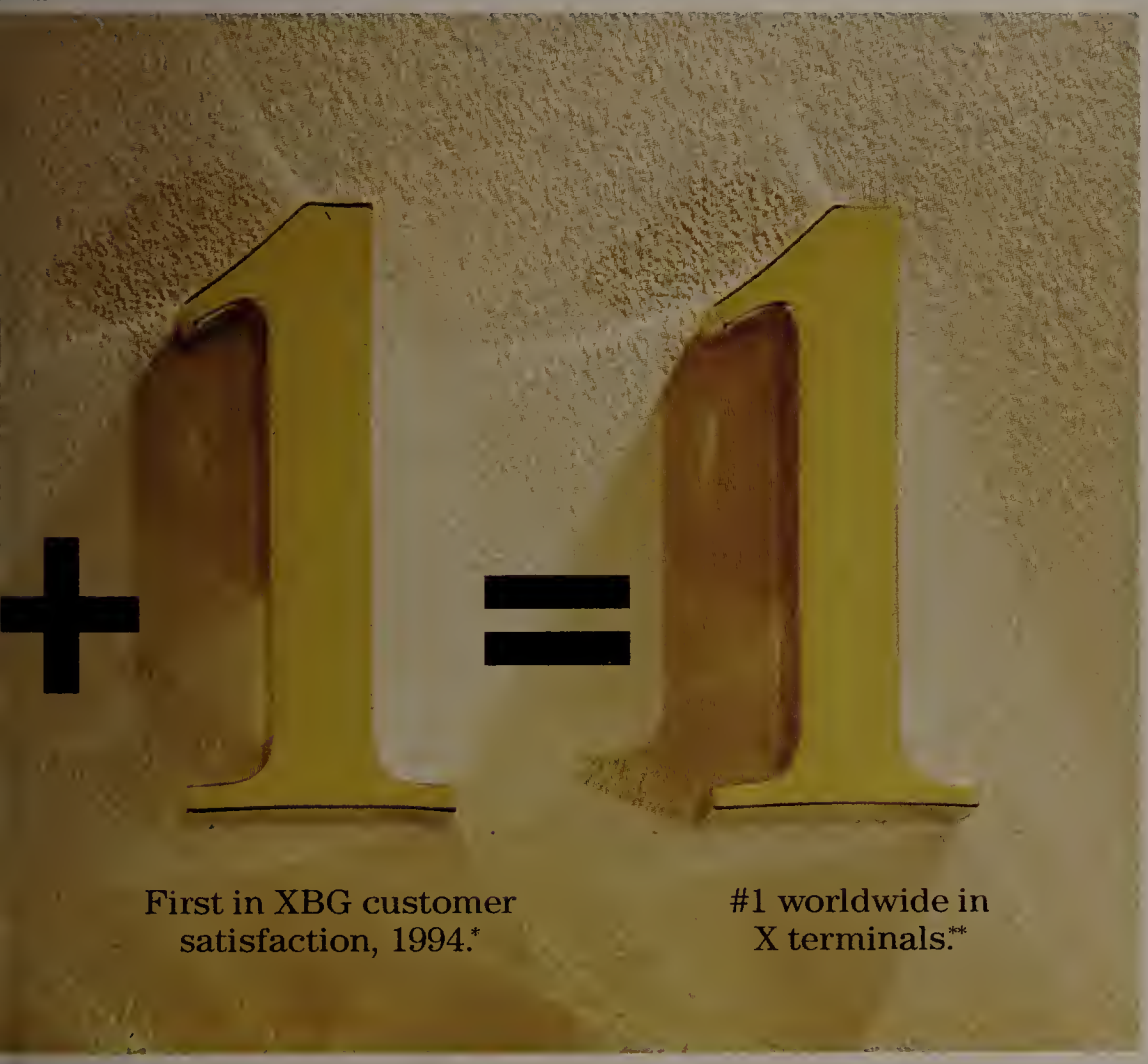
According to the Boise, Idaho, company, the EtherChain Network Adapter is a parallel port 10Base-T Ethernet adapter featuring Farallon Computing, Inc.'s EtherWave daisy-chain technology.

The adapter connects to a PC's parallel port and thereby connects portable PCs anywhere on a 10Base-T network without using additional hub ports or cable drops.

It supports operating systems including Novell, Inc.'s NetWare 3.x, 4.x and Personal NetWare; Microsoft Corp.'s Windows for Workgroups and LAN Manager; and Apple Computer, Inc.'s AppleTalk.

Pricing starts at $349.

▶ *Apexx Technology*
(208) 336-9400



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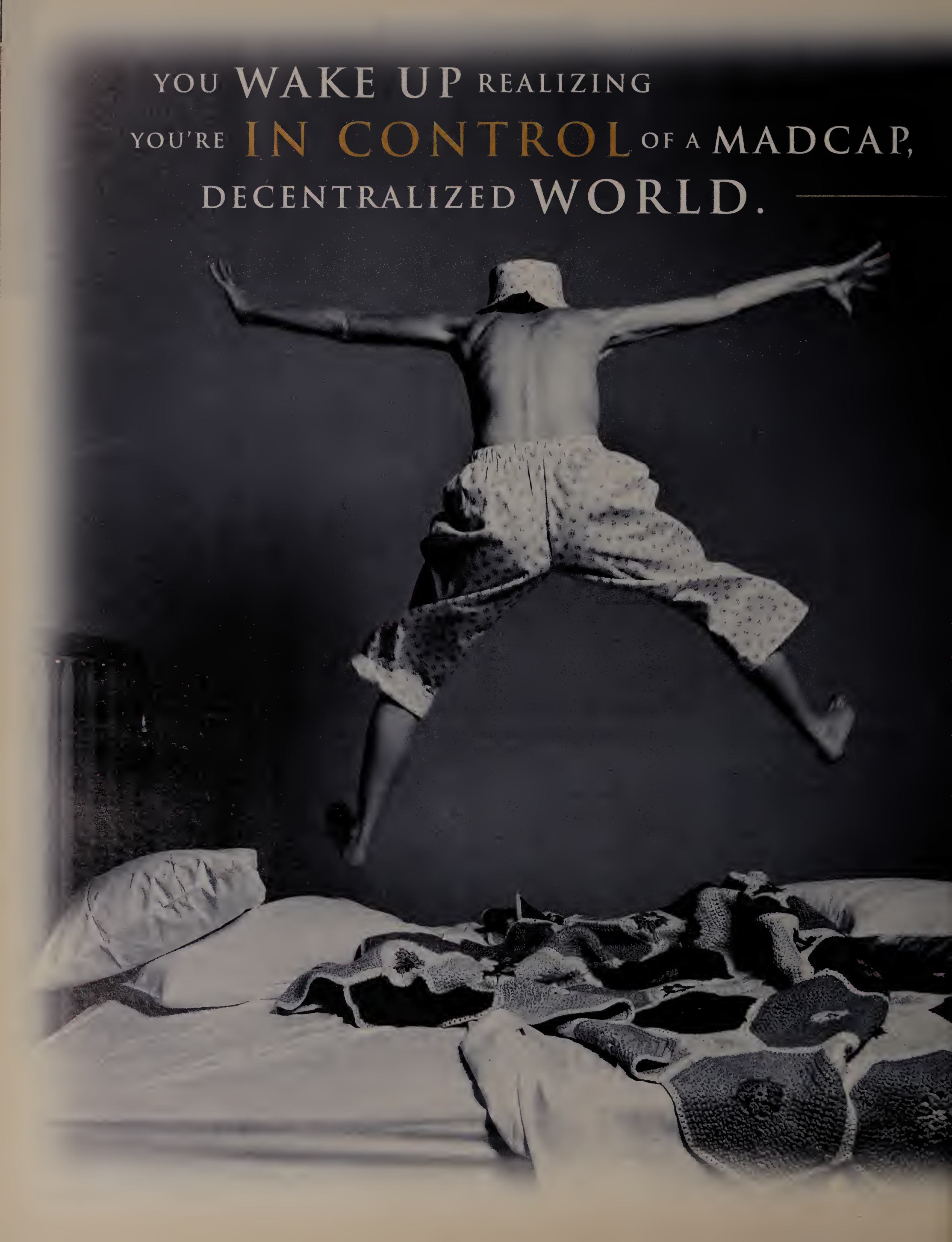

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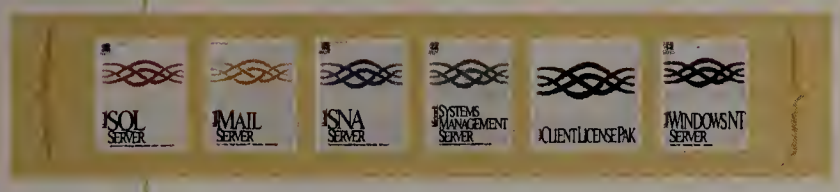

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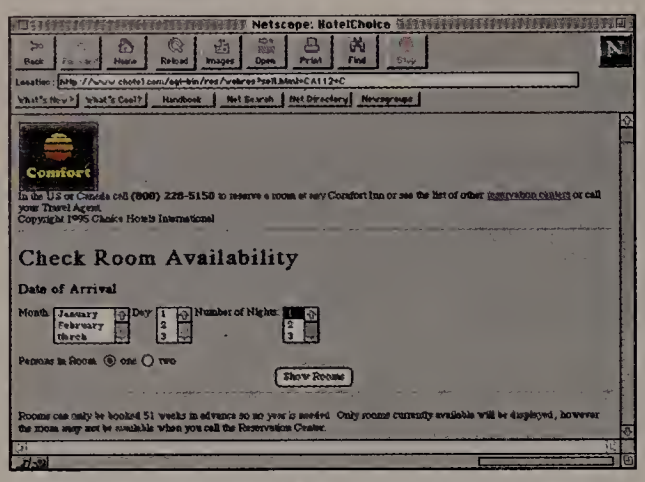
Choice Hotels opens its doors on the Internet



Choice Hotels' Web site *will give users real-time information about rates and availability*

By Ellis Booker

When Choice Hotels International migrated its core reservation system to Unix and TCP/IP in 1991, company executives never dreamed that four years later they would be allowing travelers the world over to log on to that system and book rooms.

Recently, the Silver Spring, Md., company, which owns 3,400 properties, established a World-Wide Web page on the Internet that will permit just that. By the fall, once Internet security protocols for credit-card transactions stabilize, Choice will allow real-time booking of rooms.

"Our competitors have static electronic brochures," said Choice President Donald Landry. He said the Choice Web site (http://www.hotelchoice.com) will give users direct access to the Choice 2001 computer reservation system (CRS) and offer real-time information about rates and availability.

"We wanted to provide useful information to Internet users, something that will draw them in and be of real value," said James Yoakum, senior vice president of information systems. For instance, travelers can search for a Choice hotel nearest to various points of interest, such as sports arenas or tourist landmarks.

Choice also offers value in the form of a 10% Internet discount for bookings made via its site.

Travel analysts said the Choice announcement was quite significant. "It is a dramatic step forward," said Tom Woodall, a publisher at Garrett Communications in Rockville, Md. "It was just two years ago that Radisson Hotels made their internal system available directly to travel agents."

Until now, the travel industry has largely relied on the massive CRSs established by airlines to reach travel agents and the traveling public. But changes in the travel business — including recent reductions in the commissions airlines pay to independent agents — are prompting hotels and others to look at alternative ways to reach agents and customers [CW, May 15].

Woodall said that while customer-initiated, on-line travel booking is still only 1% of the travel industry, it is steadily growing in importance.

No restrictions

One advantage of the Web site, Yoakum said, is that the amount or kind of information listed is not restricted.

"We'll provide information on our hotels that services like EaasySabre just can't match," he said. EaasySabre, which is available on consumer on-line services such as CompuServe, is a graphical user interface into American Airlines' Sabre CRS.

The Choice home page is a marvel of simplicity — its designers avoided digitized photographs and even complex graphics. By contrast, competitor Holiday Inn Worldwide, Inc. in Atlanta within 60 days will have a Web site with "a videogame about travel, electronic brochures utilizing fractal compression technologies and virtual reality walkthroughs of hotels," according to a spokesperson. On-line reservations are already supported at the site (http://www.holiday-inn.com).

Choice officials would not disclose the capital cost of the Web interface into their reservation system, which runs on a Sun Microsystems, Inc. SPARCstation 20 platform. But they did reveal that the project took six months and began as a proof-of-concept demonstration by staffers in Choice's IS department.

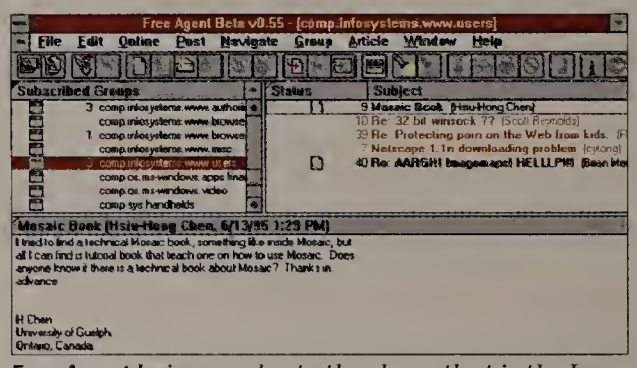
Newsreader makes Usenet readable

By Ellis Booker

Navigating the bewildering cacophony that is the Internet's Usenet newsgroups may become vastly easier with a newsreader currently available on the 'net.

Free Agent, from Forte Software, Inc. in Carlsbad, Calif., is a freeware client that comes close to bringing order to Usenet's chaos with a rich user interface aimed at the serious junky. The product, first available in beta form in mid-March, was generally released last week. Among Free Agent's features are the following:

- On-line or off-line operation (in off-line mode, the reader is configured to collect article headers, which can then be marked for on-line retrieval at a later time).
- Internal multitasking, allowing articles or images to be fetched while other headers are reviewed, marked or selected for retrieval.



Free Agent *brings order to the chaos that is the Internet's Usenet newsgroups*

- Automatic recovery and uudecoding of multipart articles and images.
- Multilevel article threading, using both subject and article identification. According to Forte: "Free Agent . . . is able to thread new articles in with old, recreating all the relationships between the articles."

In September, Forte plans a $40 commercial, supported version of Free Agent. The commercial product will add electronic mail, a folders metaphor for storing information and a spell checker. The free beta is available at Forte's home page (http://www.forteinc.com/forte).

http:

The conventional wisdom that the Internet is comprised largely of apolitical dweebs has been challenged recently by the political reaction to the Communications Decency Act, which was passed by the Senate by a vote of 84 to 16 on June 14.

Opponents (as well as a few proponents) of the amendment have been carpeting the Internet with postings and petitions for months. Recently, these individual outcries have been joined by those from special interest groups, ranging from the American Civil Liberties Union to the Christian Coalition. Yet commercial sites – including large media companies that might have been expected to say something about a bill with First Amendment implications – have been notably silent. For one IS executive, this is not at all surprising; rather, it is a sign of how the Internet is evolving from an arena of ideas to a place to conduct commerce.

"This is a referendum on the changes in the Internet," said the executive, who asked not to be named. Corporations typically stay neutral on incendiary social issues "until there is a compelling need to come down on one side or the other."

HOT SITES

To keep current about the Communications Decency Act, check these resources:

- **Time-Warner, Inc.'s Pathfinder page,** devoted to news on the topic
  http://www.pathfinder.com/@@mSWSSAAAAAAAAIb3/pathfinder/politics/netpol/
- **The Electronic Frontier Foundation's Censorship/Exon bill archive**
  http://www.eff.org/pub/EFF/Issues/Censorship/Exon_bill/
- **The Voters Telecommunications Watch page**
  http:/www.cdt.org/petition.html
- To monitor **UseNet postings,** one of the best newsgroups is comp.org.cpsr.talk

REDUNDANT SYSTEMS HELP SHIPPER STAY AFLOAT, 64

Large Systems

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Fireman's Fund fans the flames of client/server

Insurance company cuts computing costs by 38%

By Steve Moore

Many companies that took the plunge into client/server computing have ended up taking a bath, but not Fireman's Fund Insurance Co. in Novato, Calif. It moved to client/server in 1989 and has watched its computing costs shrink by nearly $45 million.

How did Fireman's cut costs by nearly 38% amid horror stories about client/server implementations that doubled or even tripled costs in many other organizations? By not throwing away all of its mainframes, said Virgil Pittman, the senior vice president who shepherded the firm to its client/server epiphany.

Integrated plan

Instead, the big commercial insurer followed a three-pronged strategy that called for reducing its dependence on mainframes, sticking with a single-vendor vision on the server side of its evolving client/server environment and developing its own industry-specific systems management applications.

"We just downgraded one of our [mainframe] machines — one we actually own — from a 3090 600S to a 400S," Pittman said. "The software vendors ... charge you based on the size of the machine you're running, so we had IBM disconnect part of the machine," he explained, adding that the move saved Fireman's about $7,000 per month in software costs.

Pittman's successful effort to off-load software development tasks from mainframes to PCs enabled the firm to take out another 600S mainframe, "and we've taken out a lot of [direct access storage devices]," he added.

Early in the game, Fireman's spun out a workstation engineering support group separate from its mainframe operation. Mainframe programmers — many of whom had already expressed interest in client/server — began to move to the new group, Pittman said.

Because they are not buffeted by change, as investment banks are, insurance companies can take the time to do technological transitions right instead of rushing into them headlong, said Raphael Benabou, president of R. B. Associates, a New York financial analysis firm that focuses on the insurance and banking industries. While insurance firms are often perceived as stodgy, "as they move slowly and surely to client/server computing, I see them succeeding," he said.

"We've been fortunate in having policies for consistency early on."

—Virgil Pittman, senior vice president, Fireman's Fund

OS/2 saves the game

With its mainframes acting as database servers for PCs that handle policy renewals and other "insurance logic," Fireman's needed a 32-bit server operating system. In 1989, having watched other users struggle with multiple minicomputer operating systems, Fireman's adopted OS/2 for all of its servers. "We've been fortunate in having policies for consistency early on," Pittman said.

Noting that OS/2 "has been 32-bit for six years now," Pittman said applications for Microsoft Corp.'s 16-bit operating systems must be rewritten for the transition to 32-bit processors. "How fast is that going to move?" he asked.

Fireman's began writing its own client/server systems management software, including application software distribution and configuration management, because "in 1988, there was nothing on the marketplace you could buy, and nobody was even thinking that way, including IBM," Pittman said.

Recently, Pittman was "given the green light" to market Fireman's custom-developed systems management software. "We will make our applications leading-edge and sell them to other insurance companies to reduce some of our costs," he said.

While Fireman's never quite reached its goal of automated, unattended mainframe systems management, Pittman said, "I think we will get to that" in client/server computing.

IBM paves the way to RISC

AS/400 users should migrate easily, but some delays expected

By Craig Stedman

The road to RISC should be relatively smooth for AS/400 customers looking to move applications from their current systems to IBM's new models based on 64-bit PowerPC microprocessors. But it is not likely to be a heavily traveled thoroughfare until well into next year, users and analysts said.

Because the OS/400 has been a 64-bit operating system from the start, most applications should transfer from today's 48-bit hardware to the RISC boxes without needing to be recompiled, according to IBM. Early PowerPC-based machines used in the AS/400 Division's Rochester, Minn., lab to convert third-party software are not equipped with compilers, IBM executives said at the late June introduction of the RISC systems in New York.

The AS/400 "is open to criticism about openness, but the advantage for users is that it's dramatically easier to make this sort of significant adjustment in technology," said Peter Burris, an analyst at Meta Group, Inc. in Stamford, Conn. In many cases, users should be able to simply "dump and load" applications into the RISC hardware and be off and running, he added.

Migration delays expected

However, even IBM acknowledged that the migration will be slowed by two factors. For one thing, the high-end multiprocessor RISC models are not scheduled to ship in volume until the first quarter of next year. These are the systems that will appeal mostly to large, power-hungry shops, observers said.

In addition, the RISC machines run their own version of OS/400. But customers are already wrestling to upgrade hardware to a massive operating system rewrite that IBM completed in February, and several users said they do not want to take on two major software implementations at the same time.

Harley-Davidson, Inc. plans this summer to start working with some of the new client/server features IBM built into the OS/400's database in Version 3 Release 1 (V3R1), the code that shipped in February. "We want to climb that learning curve right now" before making firm RISC plans, said Rich Kolbe, director of MIS at the Milwaukee motorcycle manufacturer.

Bugs in V3R1 that caused some early adopters to suffer systems crashes may also put a bite in RISC migration plans [CW, June 26]. Installing PowerPC-based systems "is not even on the board here," said a manager at a large specialty chemicals company that had problems with V3R1. "I want to see six months of stability [with V3R1] before even thinking about RISC."

Bob Dies, AS/400 Division general manager at IBM, agreed that there will be "a slight wait" on the RISC side while users get comfortable with V3R1 on their tried-and-true 48-bit hardware. "I expect that even next year a lot of customers will upgrade current systems rather than go to RISC," he said.

Norwood Promotional Products, Inc. in San Antonio is unsure which path it will take for an expected mid-1996 performance boost. "We want to do a better job of staying on top of the systems so that we're never behind the curve," said David Ferrell, information systems manager at the company. But Norwood may simply expand its non-RISC AS/400 Model 320, he added.

PowerPC to the people

IBM's line of RISC AS/400s based on PowerPC microprocessors includes the following middle and high-end models

Model	Processor	Base memory	Base price	Shipment date
TRADITIONAL SYSTEMS				
Model 500	1	64M bytes	$25,000 to $70,000	Sept.
Model 510	1	256M bytes	$137,500 to $195,000	Sept.
Model 530	1 to 4	512M bytes	NA*	Nov.
SERVERS				
Model 50S	1	64M bytes	$26,000 to $41,000	Sept.
Model 53S	1 to 4	512M bytes	NA*	Nov.

*Not announced

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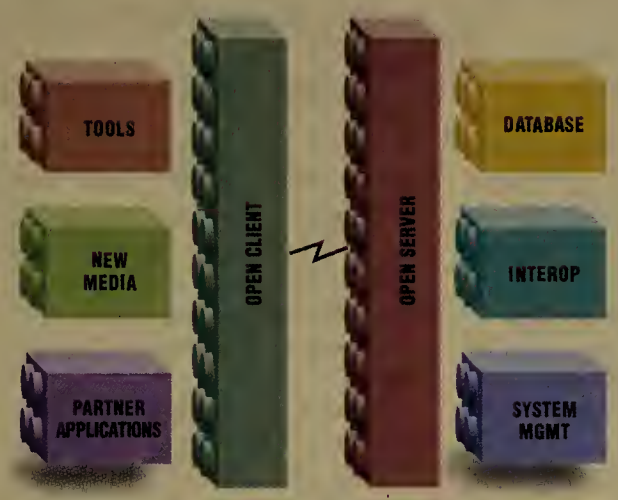

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Redundant systems help shipper stay afloat

Marine Terminals overhauls system to avoid delays, crashes

By Michael Goldberg
SAN FRANCISCO

Managers at Marine Terminals Corp. have experienced Bay Area earthquakes, Southern California fires and the resulting costly delays caused by system crashes.

To keep computers online during disasters, executives at the growing $200 million firm are creating redundant management systems at linked data centers hundreds of miles apart in the company's San Francisco home office and in Long Beach, Calif. The firm runs shipyard terminals and cargo loading docks at three West Coast ports.

"It's just essential that, short of a war, we need to operate, and we should be able to adapt."

— Larry Mazor, chief financial officer, Marine Terminals

A longtime user of Hewlett-Packard Co.'s HP 3000, Marine Terminals faced another issue, aside from the need for disaster recovery, that prompted its $1 million-plus investment: Its business has almost doubled in the past 18 months.

Eliminating delays

Larry Mazor, Marine Terminals' chief financial officer, said the company is a 24-hour, seven-day operation with a 20% share of the West Coast shipping market. Delays are expensive, and a systems shutdown is impossible, he said.

When the redundancy project started about 18 months ago, the goal was simple: Limit any computer shutdown to 15 minutes, said David Sugarman, marketing vice president at Lilien Systems, a Mill Valley, Calif., consultancy for Marine Terminals.

The company opened its San Francisco data center in January with its second HP 3000 Model 987. This system, loaded with Marine Terminals' own shipments management database programs, backs up an existing HP 3000 in Long Beach. An HP software package called SharePlex allows the machines to shadow each other. T1 and Integrated Services Digital Network lines link the two data centers to each other and to Marine Terminals sites in Oakland, Calif., Seattle and Vancouver, Wash.

The system serves about 150 end users, from managers to cargo loaders at remote shipyard sites. Marine Terminals also has direct data links with the U.S. Customs Service and customers' offices, according to Mazor.

Sugarman, whose firm is part of an HP client/server integrator program, said the redundancy project required Marine Terminals to rebuild all its databases to make them compatible with T1 lines. The data centers also needed custom software to remotely configure HP's data terminal communications managers to make switching systems from San Francisco to Long Beach more efficient.

Close, but . . .

Marine Terminals managers said the redundant systems have been in place since June 1. They cannot make the switch over in 15 minutes yet, although they are close to 30 minutes.

"It's been a difficult process. There's a learning curve involved because we're doing a combination of things nobody here had tried," said John Montgomery, the company's manager of technology integration. Marine Terminals' last chief information officer was a casualty of the project, managers said.

Mazor said Marine Terminals was not trumpeting its redundant systems as a sales point to reach potential clients. "It's not a lead item on a sales piece. It's just essential that, short of a war, we need to operate, and we should be able to adapt," he said.

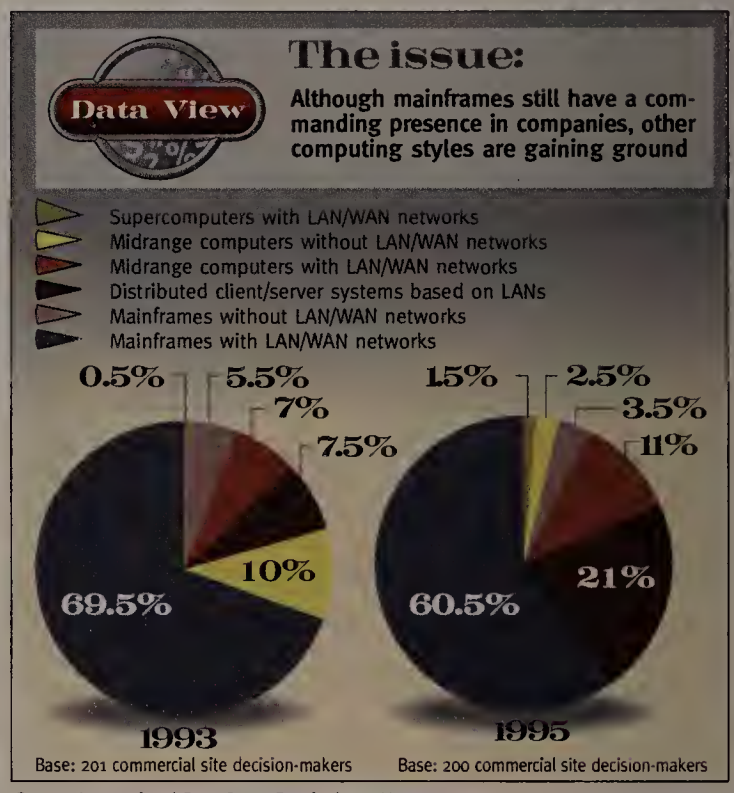
Briefs

A lost cause

The **California Department of Motor Vehicles** (DMV), which conceded one year ago that its $44 million computer overhaul did not work, has released a consultant's report urging the agency to scrap or sell its 4-year-old **Tandem Computers, Inc.** system. The system costs $1 million a year to maintain. The Warner Group in Woodland Hills, Calif., recommended that the DMV undertake a reengineering effort to define business needs, convert IBM mainframe databases to a standard format and replace aging IBM Series/1 computers at field offices.

Real solution

Wayne State University in Detroit has acquired a J916 supercomputer from **Cray Research, Inc.** The $1.4 million system will be used throughout the university for a number of scientific applications, including the simulation of catastrophic events such as river pollution to help solve real-world problems. That research will be conducted by Wayne's College of Engineering.



Workflow capabilities a hit with users

Ramco's suite of apps routes requests, notices

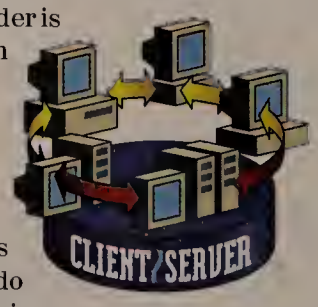
By Tim Ouellette

Newcomer Ramco Systems Corp. is unveiling a suite of client/server manufacturing applications with workflow routing capabilities.

The object-oriented suite of Windows client applications, known as Marshal and due in August, will use Microsoft Corp.'s Messaging Application Programming Interface technology to automatically route authorization requests and notices.

"What they have done is add intelligence to a message," said Stewart McKie, an analyst at PinPoint Consulting in Redmond, Wash. "Instead of seeing a piece of text, you are launching into a specific place in a host application."

A Windows user need only double-click on the workflow message to bring up the Dynamic Link Libraries containing the work item or notice. For example, after a sales order is authorized on the system, notices go out to the production areas. If the production managers decide they do not have the inventory or capacity to meet that order, the system prepares purchase orders to outside contractors.



"We like what we saw because it is very Windows-oriented," said Carlos Monssen, director of information technology at Bemis Corp. in Oshkosh, Wis. Though the manufacturing giant will use Ramco software for maintenance management and purchasing, it is buying Dun & Bradstreet Software's financial applications, which also come with workflow capabilities.

"We are a little worried we might wind up with too many workflows," Monssen said. PeopleSoft, Inc., SAP AG and Oracle Corp. have already committed to deliver workflow capabilities this year, while D&B Software has offered workflow since 1993 [CW, May 1].

Hot commodity

And Ramco, waiting until it had a full line of offerings before hitting the market, is following suit. "Without a doubt, it is one of the hottest things people are calling us about right now," said Wallace Luke, vice president of sales and marketing at Sunnyvale, Calif.-based Ramco.

At the Naval Petroleum Reserve in Tupman, Calif., Ramco software will help cut the time it takes to shuffle paper from office to office for authorization by a half hour on each document, according to John Patterson, a consultant who is installing the maintenance management portion of the company's system.

Marshal applications start at $40,000 each. They run on Unix, OS/2 or Microsoft's Windows NT servers and support Microsoft, Oracle and Sybase, Inc. databases.

The workflow mapping features can start processes in other systems or in Ramco's suite of client/server applications, which includes financial and human resources systems.

McKie noted that the breadth of modules available from Ramco, totaling 18, is unusual for a start-up firm. "All that stuff is not trivial," he said.

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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management
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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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Application Development

CASE • LANGUAGES • TOOLS

Middleware assists client/server scalability

By Elizabeth Heichler

Companies implementing client/server systems in which applications are split up among three or more computers are getting some help from tools that shield them from complex infrastructure issues.

Last week, Neuron Data, Inc. in Palo Alto, Calif., added distributed communications to its Elements application development tool set. And in a separate move, Visix Software, Inc. announced that its Galaxy tool has been integrated with object request broker technology from Iona Technologies Ltd. in Dublin.

Also in recent weeks, Open Environment Corp. in Boston extended its tools for the Distributed Computing Environment (DCE) to talk to MVS mainframes, and Open Horizon, Inc. in Belmont, Calif., launched a tool intended to make it easier to use DCE in client/server programming.

"Multitier client/server very quickly becomes distributed applications, and you need a generalized [communications] infrastructure to allow that," said John Mann, research director for client/server computing at The Yankee Group, a market research firm in Boston.

Middleware is a catchall term for a variety of software technologies, among them remote procedure calls and object request brokers. The common ground is that they allow pieces of applications logic, which may be distributed over a network, to communicate.

Hands off

With application development tools such as fourth-generation languages (4GL) adding support for this type of distributed infrastructure, developers are able to build applications that take advantage of underlying communications technologies without having to work with them directly, he added.

Neuron Data has adopted this approach with its distributed Elements product. It has incorporated into its 4GL environment a software technology in which agents automatically route information among the partitioned modules of a distributed application. The technology also allows connection patterns among distributed modules to be changed as needed. These changes can be made while an application is running, so applications do not need to be pulled off-line, according to the company.

At MFS Datanet, Inc., a San Jose, Calif., provider of broadband ATM networking services, corporate developers use Elements to quickly build front-end graphical user interfaces. Elements enables them to build networked, distributed applications without having to worry about network connections, said Scott Yeager, vice president for sales and distribution.

"Developers don't have to worry about where the network connections are or if the application is running over a local- or wide-area network. They just plug the application in, and the communications piece is taken care of inherently," Yeager said. In other application development environments, the communications component would have required an additional development effort, he added.

Information systems trendsetter Wal-Mart Stores, Inc. is opting for middleware based on remote procedure calls to handle communications in its distributed client/server systems. The retailer will use NobleNet, Inc.'s EZ-RPC tool because it will let it quickly produce networking code without special training, a Wal-Mart spokesman said.

Open Horizon's Connection tool has made it possible for a large California public utility to gain the benefits of using DCE as a common communications infrastructure for about 45 different client/server applications without having to delve into difficult DCE programming, said Scott Kandel, senior manager at Deloitte & Touche in Los Angeles. The firm worked with the utility to solve the problem of multiple log-in and security procedures required by the different client/server applications.

"The Connection product has been a godsend for this project," Kandel said. Connection allows developers to use DCE without having to program directly to the standard's calls.

Middleware tools for application developers

Vendor	Tool	Price
Neuron Data Palo Alto, Calif.	Distributed communications component	$7,500 per developer license
Visix Software Reston, Va.	Integration with Iona's Orbix object request broker	No charge with Galaxy application development tool
Open Environment Boston	Entera for Open Edition MVS	$2,000 per development desktop
	Entera/TransAccess for MVS	Starts at $190,000 for bundled development environment and services
Open Horizon Belmont, Calif.	Connection	$295 per user

Next takes another object-oriented step

By Kim S. Nash

Next Computer, Inc. recently began shipping an upgrade to Portable Distributed Objects (PDO), a key piece of Next's object-oriented development environment.

PDO is a distributed object framework designed to let users or applications access business and data objects regardless of where they reside on a network. New to the upgrade are links to another Next product, called Enterprise Objects Framework (EOF), which helps object-oriented applications exchange information with relational databases, such as those from Oracle Corp. and Sybase, Inc. (see chart).

The upshot is that users can now more easily build applications that take advantage of data already stored in corporate databases and also move objects to different clients and servers as network traffic dictates.

Huge difference

PDO cuts coding time for applications that require objects to be spread across a network, according to Roland Telfyan, a systems research programmer at the Center for Display Technology and Manufacturing at the University of Michigan.

For example, the university recently built an application for semiconductor manufacturing using Next tools, including PDO, in three months. If Telfyan and his colleagues had used other graphical tools and had to write code manually for distributing objects, the process would have taken roughly two years, he said.

"This is a gorgeous tool," said Telfyan, who has tested alpha and beta versions of PDO 3.0.

PDO is expected to support Microsoft Corp.'s Windows NT operating system and OLE technology by the first quarter of next year, said Jackie Linder, product manager for PDO and EOF at Next in Redwood City, Calif.

Support for the Common Object Request Broker Architecture, a would-be distributed object standard from the Object Management Group, is expected late next year, Linder added.

Sun setback

Though Next continues to enhance and upgrade its products, the company recently experienced a setback related to a partnership with Sun Microsystems, Inc. Sun announced at its annual user conference last month that it would not ship a Solaris version of Next's OpenStep environment until next year — at least six months late [CW, May 29].

Next's Portable Distributed Objects 3.0

What it does: Lets users access business and data objects over a network regardless of where the objects reside

Platforms supported: Digital Unix, HP-UX, SunOS, Sun Solaris

Price: $499 per seat

OpenStep is the operating system-independent version of NextStep, Next's object-oriented development environment, which runs on the Unix Mach kernel. Hewlett-Packard Co. and Digital Equipment Corp. also have OpenStep agreements with Next.

Meanwhile, Sun has agreed to sell NextStep on its platforms as an interim step for users eager to create programs with the object-oriented tools on Sun systems. "Users can build applications now and swap in OpenStep when it becomes available," said Marty Yam, Next's vice president of worldwide sales and marketing.

Next has dedicated no extra resources to the project other than those it provides to "all our other partners," Yam said. "We continue to be available and interested to work with them as they request help," he added, referring to engineers at Sun working on the long-planned Solaris port of OpenStep.

Yam said that although Next Chief Executive Officer Steve Jobs has publicly stated sales projections that include anticipated OpenStep revenue, Next will be unaffected by the late delivery.

Commentary

Mitch Betts

Don't forget life's oddities

Usually the homespun column atop *The Washington Post* comics page is full of Andy Rooney-style complaints about people with more than 10 items in the express checkout line. But this one was different.

It featured the plight of Jane Knight of Burke, Va., and her twin boys, Thomas and William, born Dec. 17, 1985. It seems the local Blue Cross/Blue Shield's computer system would accept the medical claims for Thomas, but would routinely reject the claims for William because it said — erroneously — that they had already been processed.

Of course, that led to several rounds of phone calls to straighten out the mess. A Blue Cross spokeswoman explained that the glitch was caused by a new computer system that matches claims by birth date, sex and policy identification number — in that order. When it came to William Knight, the computer had already found a "hit" from Thomas' records.

In essence, the programmers forgot that in some families, two (or more) kids can have the same birthday. I find it inexcusable. We're almost upon the 50th anniversary of ENIAC, the first large-scale electronic computer, and we can't reliably account for twins? Shameful!

But that's not all. Several years ago there was the story of Stephen O of Vienna, Va., who had big-time problems getting credit cards, insurance and a driver's license because the various computer systems could not recognize a one-letter last name. (O is a common family name in his native South Korea.) He finally surrendered and changed his legal name to Oh, according to an Associated Press report.

Given the diversity of the American populace — with ethnic names, hyphenated names and Srs., Jrs. and IIIs all living at the same address — it is crucial to have information systems that are both flexible and precise enough to handle those differences. If nothing else, it's a matter of good customer service.

Given the diversity of the American populace, it is crucial to have information systems that are both flexible and precise enough to handle differences.

Leap-year headaches

These are not new problems. What makes me angry is that we keep repeating the same programming mistakes over and over. It seems that every leap year, for example, there are major computer snafus due to sloppy programming.

Consider that in 1992, leap-year bugs crashed bank teller networks in New Zealand (that's where these problems first show up because New Zealand brings in the new day). And shortly after Feb. 29, 1988, a supermarket was fined $1,000 for having meat around one day too long, thanks to a computer program that failed to account for the leap year.

"New systems continue to fall victim to old and well-known problems," notes computer scientist Peter G. Neumann, author of *Computer-Related Risks*. By the way, next year (1996) is a leap year. . . .

For the record, the rule is this. (Bear with me. There's a rule, an exception to the rule and an exception to the exception.) Every year that is exactly divisible by four is a leap year, except for years that are exactly divisible by 100; centurial years are leap years only if they are exactly divisible by 400. So the year 2000 is a leap year, but 1900 and 2100 are not.

If you program the first two parts of the rule but not the 400 exception, your system won't recognize Feb. 29, 2000, notes Michael D. Lips, president of TransCentury Data Systems in San Francisco. And we all know what a lovely year 2000 will be anyway, because of the two-digit year fields in our legacy systems.

This will sound harsh, but programmers who fail to use well-vetted code to deal with life's anomalies — such as twins, unusual names and leap years — should be dismissed for negligence. Better yet, they should have to personally face the angry customer whose records they have trashed.

Betts is *Computerworld*'s senior editor, social and legal issues. His Internet address is mbetts@cw.com.

New Products

SQL Financials International, Inc. has introduced SQL Financials Workbench Manager.

According to the Atlanta company, SQL Financials Workbench Manager lets users tailor applications without programming or modifying source code. Users can modify and extend screen objects and alter and maintain database structures by dynamically linking to external applications.

It also lets users add fields and tables, perform validations, hide a field or screen object, change screen properties, customize applications, centrally distribute customizations to network and remote users, automatically roll forward application modifications, move database objects and browse the database using a hierarchical tree view.

SQL Financials Workbench Manager lets users dynamically link to non-SQL Financials applications, including imaging and decision-support products created in Microsoft Corp.'s Visual Basic/Visual C++, Powersoft Corp.'s PowerBuilder or Gupta Corp.'s SQLWindows.

SQL Financials Workbench Manager will be available in September. Pricing starts at $35,000 per module for unlimited use.

▶ *SQL Financials International*
(404) 390-3900

Trinzic Corp. has unveiled Trinzic RuleServer, a distributed business rules processing engine for the implementation of enterprise applications.

According to the Palo Alto, Calif., company, Trinzic RuleServer uses graphical user interfaces (GUI), data access and application logic to deploy applications incorporating complex business logic and rules. Business logic and rules are partitioned on the server, which acts as a rules repository. RuleServer allows the automatic partitioning of applications, with the user interface code running on the client and the rules processing on the server.

Trinzic RuleServer can be used with third-party, fourth-generation languages (4GL) including Microsoft Corp.'s Visual Basic or Powersoft Corp.'s PowerBuilder. The 4GL is used to develop the GUI and is extended as RuleServer performs the business logic of a specific application.

RuleServer will be available for the OS/2 environment in the fourth quarter. Pricing for Trinzic RuleServer starts at $40,000.

▶ *Trinzic*
(415) 328-9595

ObjectSpace, Inc. has introduced Systems ToolKit, a set of cross-platform C++ foundation classes.

According to the Dallas company, Systems ToolKit includes a developer's interface with operating system features including files, sockets, threads and processes. It also includes implementation of STL ToolKit (a Standard Template Library).

Code written using the Systems ToolKit cross-platform classes is thread-safe and works without modification across Unix, Microsoft Corp.'s Windows 3.1 and Windows NT and IBM's OS/2.

Systems ToolKit costs $375.

▶ *ObjectSpace*
(214) 934-2496

Summer breezes

Books for your favorite developer's summer reading stack:

▶ *Agents Unleashed* **by Peter Wayner, 358 pages, $39.95 (paperback, includes PC and Macintosh System 7.0 disk).**

Wayner, the 31-year-old president of New Ray Software, has written about how to create an agent system for the public domain. Focusing on public domain tools, the book was designed for all levels, though certain chapters require knowledge of high-level programming languages.

Various chapters explain agents and how they operate in host databases. Security concerns, such as how to authenticate users and encrypt vital information, are also explored.

▶ *Advanced Software Applications in Japan* **by Edward Feigenbaum, Gio Wiederhold, Elaine Rich and Michael Harrison, 653 pages, $86 (hardcover).**

A collection of four academic reports coordinated by the Japanese Technology Evaluation Center, which is administered by Loyola College in Maryland. The reports came out of projects sponsored by the National Science Foundation and the Advanced Research Projects Agency.

The reports also assess the competitive strengths and weaknesses of the Japanese in four areas of high-level software development: Knowledge-based systems (1993), database use and technology (1993), machine translation (1992) and advanced computing (1990).

The co-authors and co-editors are longtime professors of computer science at major universities, and each project has several essays contributed by other academics. Each project team spent at least a week in Japan for research related to their specific projects.

▶ *Sybase and Client/Server Computing* **by Alex Berson and George Anderson, 743 pages, $50 (hardcover).**

Berson, a systems strategist at a large financial services company, and Anderson, president of Enterprise Engineering and a Sybase consultant, has written a companion volume to Berson's *Client/Server Architecture*. The focus is on how to use Sybase System 10 for application development within client/server architectures and incorporate it into various Unix and PC operating systems.

The authors also examine various application development standards, such as the Object Management Group's Common Object Request Broker Architecture and the Open Software Foundation's Distributed Computing Environment.

— Compiled by Michael Fitzgerald

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Management

INSIDE: How to be a great contract manager. Page 70

SAP

Good help is hell to find

Inexperienced consultants demanding high fees plague the SAP scene. But you can avoid R/3 roulette if you do your homework.

First came re-engineering. Then came client/server. And now — a little fanfare please — organizations around the world are embracing SAP AG's R/3 software as the latest tool for improving business processes.

The world's corporations just can't get enough of R/3. Literally.

Rarely before has the computer marketplace created a demand that so dramatically outstrips supply. But not for the software itself. Instead, the shortage lies with the most critical component of the endeavor — qualified SAP consultants to configure the system.

The shortage is getting downright scary for those chief information officers, chief executive officers and chief financial officers who want to switch to SAP ASAP. The first problem: Qualified R/3 consultants command, far and away, the highest fees in the computer consulting industry (see charts, page 69). The reason? More than any other system intended to run an enterprise, R/3's watertight integration holds a magnifying glass to inefficient business processes, forcing companies to redefine their very operations.

Good SAP consultants bridge business and technology. "The real skill is in truly understanding how business is supposed to work, then using that knowledge to configure a system where all of the modules interact properly," says Frank Monteleone, director of technology and data architecture at Packaging Corporation of America in Evanston, Ill. "That's a hard combination of skills to find."

Which brings us to Problem No. 2.

"The biggest ripoff right now is consultants coming in with just the technical SAP skills and billing $200 an hour," says Monteleone, echoing the lament of other information systems executives.

In fact, management consultants say, the situation is critical. "Any consulting firm worth its weight should be turning down some engagements since they do not have the resources to do a quality job in all situations," writes Bonnie Digrius, Gartner Group, Inc.'s vice president of information technology management, in the firm's recent "External Service Providers Research Note."

"Although we have seen some consulting firms turn down specific SAP business ... we believe that many other firms will sell all the projects that they can find. This will lead to a number of SAP implementation failures over the next 18 months."

Now comes the $64,000 question: How are you supposed to find qualified consultants when your knowledge of R/3 is less than zero?

SANDRO D. MILLER

Frank Monteleone, director of technology and data architecture at Packaging Corporation of America, says it's tough to find consultants who understand his business and can configure a SAP system

Three's a charm

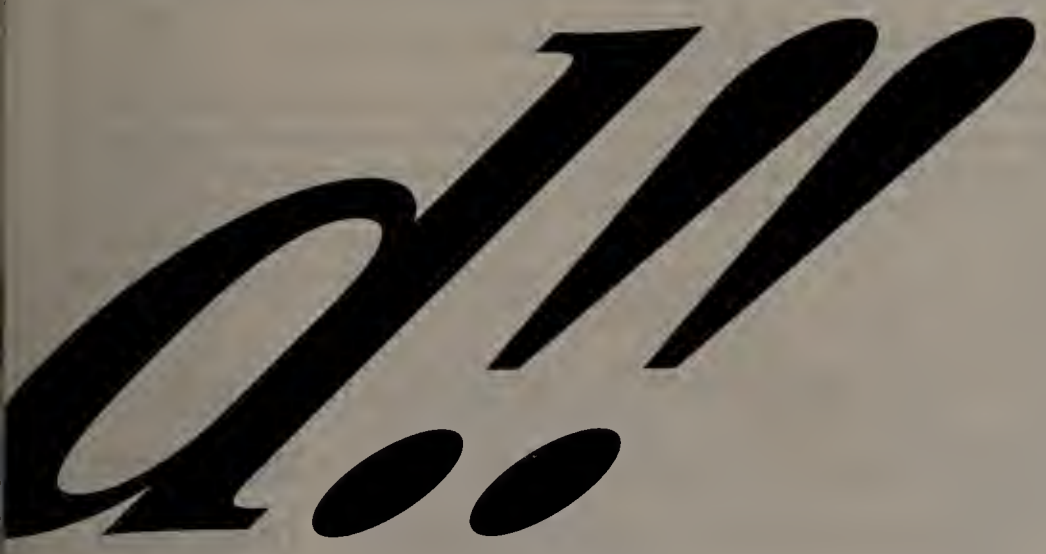
The first step, say those who've survived the process, is to interview at least three consulting firms. Remember: That impressive person who does the initial schmoozing probably won't be the one placed on the project. It's up to the CIO to check the credentials of each consultant proposed for the project, with a particular eye toward their track record.

"For the price you're paying, don't take people who simply have had training or only one year of SAP experience," maintains Randy Lewis, director of information services at Lyondell Petrochemical Co. in Houston.

Next, consultants say, write those consultants' names into the contract. Moreover, those consultants should be allowed to leave the project only with the company's express permission.

Most projects will need three SAP consultants. At the highest level is a project leader who understands the intricacies of business as thoroughly as the mind-numbing array of configuration options. At the next level down comes a team leader, to tune the system for each business process. And finally — the least expensive of the three — a programmer to write reports and create "bolt on" applications in ABAP, SAP's native language.

The moral of the story? Before joining in the mad rush for SAP's R/3, prudent organizations might decide to wait for the supply of qualified consultants to catch up with demand. But if you absolutely can't wait, then at least read the road signs: Extreme caution required. ■



Considering or installing the SAP R/3 system? Your success will depend on how well you handle the management issues surrounding it: a severe shortage of experienced consultants and the serious impact it will have on your IS organization. Rochelle Garner tells why.

Integrated systems, integrated people

If you thought teaming with users, restructuring IS jobs and keeping your top people couldn't get tougher, just wait.

Once you bring in SAP AG's R/3, your IS organization will never be the same. Old jobs will disappear, new ones will emerge, and some staff will become the department's golden children — to be handled with extreme care.

Quite simply, R/3 is not like any other software. Modify it, and all the king's horses and all the king's men won't be able to put its pieces back together again.

"IS is very hands-on, and they want to get their hands on a program's source code," says Juergin Sattler, CEO of U.S. operations at ICS Deloitte in Chadds Ford, Pa. "With SAP, you don't touch the source code because it's too complex to change and too hard to reconcile those changes later when it's time to upgrade."

The result is far fewer programmers. And because R/3 emphasizes business processes, it practically forces the institution of work teams — with IS staff and business managers actually working shoulder-to-shoulder. The changes there? Good-bye to data analysts, who once functioned as the liaisons between IS and the rest of the corporate universe.

And hello to a new way of working, with IS supplying the necessary knowledge of how processes span a company's divisions.

"We rarely worked with the businesspeople day-to-day before SAP," says Frank Montelone who, in his previous job as technology director for strategy, planning and information, oversaw Nutrasweet Corp.'s SAP project. "After implementation, it became a team where you couldn't tell who was from IS and who was from business. SAP encourages teamwork because there are so many decisions that have to be made to tailor it to your business."

In fact, say those 10% that have completed the approximately 400 SAP projects started in the U.S., SAP's business focus forces a new organizational structure, with programmers, analysts and others shifting their attention to new responsibilities. That's what happened at Pentax Corp. in Englewood, Colo., says Ruth Rowedder, Pentax's IS manager.

"After completing our implementation, we had to completely redefine everyone's job duties, responsibilities and reporting structure," Rowedder says. Why the change? Because R/3's incredibly tight integration dictates a strong coordination effort. "Even changes to a PC can have an effect," she says.

Sound dramatic? That's nothing, according to CIOs who've gone through the SAP experience. The real management challenge within the IS organization is the care and feeding of those newly trained in SAP. The problem is retention. Like their consultant counterparts, IS staff with some R/3 under their belt can triple their salaries in just 18 months. Enter incentives — bonuses for milestones, clearly blazed career paths and truly conveyed appreciation.

"If all you reward them with is money, you will lose them," says Randy Lewis, director of information services at Lyondell Petrochemical Co. in Houston. "If you haven't built up loyalty and dedication before going with SAP, you'll watch $20,000 in training and $100,000 worth of experience walk out the door."

It's a huge problem. So big that Circle International in San Francisco has decided to put off its SAP implementation until it figures out how it will hold on to SAP-savvy staff.

"This is a package that requires a lot of dedication and discipline and a well-thought-out strategy for keeping our human resources," says Circle CIO Pat Morrison. "SAP imposes a different support burden on our organization than what we're used to."

Garner is a freelance writer in San Carlos, Calif.

SAPing your resources

Expect to pay more – much more – to hire an independent consultant with SAP expertise

SAP	$135 per hour
RE-ENGINEERING	$100 per hour
ORACLE	$90 per hour
SYBASE	$90 per hour
CLIENT/SERVER	$90 per hour
POWERBUILDER	$80 per hour

Source: The Professional Consultants Network, a consultants brokerage in San Francisco. The figures represent median fees commanded by the highest-level independent consultants in these six disciplines.

SAPing your budget

Expect to pay at least $175 per hour for consultants from a big-name consultancy

PRACTICE MANAGER, INDUSTRY VICE PRESIDENT OR PARTNER (partner directing SAP practice)	$400-$500 per hour
PROGRAM DIRECTOR OR PROJECT MANAGER (minimum 4 years' SAP experience, business background)	$200-$300 per hour
SENIOR CONSULTANT (2-4 years' SAP experience, business background)	$200-$225 per hour
CONSULTANT (at least 1 year SAP experience)	$175 per hour

Source: Gartner Group, Inc., Stamford, Conn. The figures represent average hourly billing rates from consultants such as Andersen Consulting, CSC, Coopers & Lybrand, Deloitte & Touche, EDS, Ernst & Young, IBM, KPMG Peat Marwick and Price Waterhouse.

CONTRACT MANAGERS

How the great became first-rate

By Allan E. Alter

Are you a young information systems manager who wants to get ahead in the age of outsourcing? Then you need to realize that mastering technology, understanding the challenges facing your business and knowing how to manage staff and projects will get you only so far. There's at least one more skill you need — managing relations with contractors and outsourcers.

As with any skill, there are those who are good at it and those who are great. There are the schoolyard wonders, and there are the Michael Jordans. Just what separates the great outsourcing contract managers from the merely good ones? I asked two IS executives working for companies where there has been wide-scale IS outsourcing to think of contract managers they have known and spell out the difference between good and great.

1. Good contract managers can negotiate an outsourcing deal that provides good service at a fair price. Great ones can also figure out the deal that best leverages the vendors' abilities and creates the most value.

The greats can see beyond the obvious skills a provider can bring to the table. They can spot the potential benefits from combining another company's latent capabilities with their IS staff's own skill sets, says Gary R. Osborn, chief information officer at Hughes Space and Communications Co. in El Segundo, Calif. For example, a database vendor may be able to do more than provide software: Its people could have the ability to do database administration, systems integration or even help your company develop new products.

"Sometimes you have to help the other company see the potential they can bring to the ball game. It may not be obvious to them," Osborn says. But the great contract managers can envision it.

2. Good contract managers understand how an outsourcing deal affects their IS organization's costs. Great ones grasp how it affects costs across the entire company.

The best contract managers know their company's costs of doing business, Osborn says. That gives them the ability to see beyond the outsourcer's impact on the IS budget and understand how the outsourcing vendor can affect, for better or worse, other business costs — such as the cost of providing services to your company's customers.

3. Good contract managers recognize problems and act on them. Great contract managers can smell them coming before anyone else. Their motto isn't stop problems before they get too big, but wipe them out before they grow – and then eradicate them forever.

If there's anything contract managers need to do, it's continually anticipate problems, says Kristine Buitenhek, manager of information resource management at Lockheed Martin Astronautics in San Diego. The best of the breed keep their ears to the ground: If they pick up any dissatisfaction with the outsourcing vendor and their actions, they talk to their fellow employees, figure out what's wrong and act. Finally, the great contract managers come up with long-term solutions, not short-term quick fixes, she says.

THE BOTTOM LINE: You don't have to go to law school to become a great contract manager, but you do have to get out of your office.

4. Good contract managers appoint competent people from their side to work with the outsourcer and find the competent people on the vendor's side. Great contract managers also make sure the personalities click and good relationships blossom.

Great contract managers understand the people on both sides — their motivations and their commitment to making the deal work. And they pay close attention to how the relationships develop. "A lot has to do with sensitivity to the people and the way the personalities match up," Buitenhek says. And if those personalities don't match, the best contract managers get vendors to find a person who would be a better match.

5. Good contract managers know how Contractor A impacts their IS organization. Great ones understand how Contractor A also affects Contractors B, C, D and E.

The greats understand the impact one contractor has on the work being done by others. They can also get their contractors to form relationships with one another. To do that, you need a contract manager who, like a good systems engineer, "can see the system end-to-end and see how the pieces play together," according to Osborn.

The bottom line: You don't have to go to law school to become a great contract manager, but you do have to get out of your office. You need to really know your vendors, your own staff and other people in your company; you need to build relationships with them. Even understanding your own company's cost drivers can't be learned from a financial report — you need to learn by talking with managers outside IS.

Listening and networking — the people kind, not the technical kind — is the only way to become the Michael Jordan of contract management.

Alter is *Computerworld*'s senior editor, Management. His internet address is aalter@ew.com.

Calendar

JULY 24-AUG. 18

MANAGEMENT

NCDM '95: 15th National Center for Database Marketing Conference. Chicago, **July 26-28** — Seminars: "ROI: The Real Story," "Why Databases Fail: Nine Deadly Mistakes That Will Ruin Your Chances for Success" and "Balancing Sales Channel Performance and Customer Satisfaction." Contact: Margaret Launzel-Pennes, Cowles Events Management, Stamford, Conn. (800) 927-5007.

Total Trainer Program 1995. Toronto, **July 30-Aug. 3** — Also offered **Aug. 13-17** in San Francisco, **Aug. 27-31** in Orlando and **Sept. 10-14** in Chicago. Keynotes: "The New Trainer: Interactive, Wired and Totally 'Unburnt-out' " by Elliott Masie, president of The Masie Center; and "Creating and Managing a Performance Technology Organization" by Jim Muller, manager of performance technology at Hewlett-Packard Co. Contact: Lakewood Conferences, Minneapolis, Minn. (800) 707-7792.

USER GROUPS

Real World TeX: The 16th Annual Meeting of the TeX Users Group (TUG). St. Petersburg Beach, Fla., **July 24-28** — Focus: Preparation of documents with TeX — from author to publisher and all points in between as well as systems administrators and others involved in providing TeX support in a computer-based environment. Contact: TUG, Santa Barbara, Calif. (805) 963-1338.

TECHNOLOGIES

The Fourth Annual IC Card Expo. Santa Clara, Calif., **July 24-26** — Management seminars: "The Set-top Box Market — An Enormous Opportunity," "Mastering the Channel" and "The Changing Face of Compatibility." Fee: $365. Contact: Argus Trade Shows, Atlanta, Ga. (404) 618-0499.

Industrial Bar-coding: Today's Most Effective Method for Managing Delivery, Manufacturing, Shipping and Distribution. Rochester, N.Y., **July 25-26** — Also offered **Aug. 15-16** in Harrisburg, Pa., and **Nov. 15-16** in Boston. Fee: $895. Contact: Kay James, College of Commerce and Industry, Clemson University, Clemson, S.C. (803) 656-2200.

MacWorld Expo. Boston, **Aug. 8-11** — Contact: Mitch Hall Associates, Dedham, Mass. (617) 361-2001.

Object World. San Francisco, **Aug. 13-17** — Keynotes: "Object Technology: Road Map for the Future" by Gerald Held, senior vice president of Oracle Corp.; and "Object Technology: The Journey So Far and What Lies Ahead" by Colin Crook, senior technology officer at Citicorp. Fees: $1,195 before July 14, $1,295 after July 14. Contact: IDG World Expo, Framingham, Mass. (800) 225-4698.

Multimedia Conference '95. San Diego. **Aug. 16-17** — Keynote: Robert Abel, award-winning documentary filmmaker and president and creative director of Synapse Technologies, Inc. Contact: Stoorza Ziegaus & Metzger, San Diego, Calif. (619) 236-1332.

Northwest Association for Information and Imaging Management (AIIM) Conference. Seattle, **Aug. 17-18** — Topics include multimedia, integrated document management, networks and communications, text management, forms processing and workflow. Fees: $170 for AIIM members, $195 for nonmembers. Contact: Fred Westfall, AIIM Northwest Chapter, Seattle, Wash. (206) 924-7377.

INDUSTRIES

Supply Chain Management: Shared Value Strategies. Morristown, N.J., **July 25-27** — Topics: sharing risks and rewards, quick response and continuous replenishment and strategies of supply chain management deployment. Contact: Denise Sharp, The Yankee Group, Boston, Mass. (617) 367-1000.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

SEND ANNOUNCEMENTS TO:

David Weldon, Associate Editor/Management, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-8931.

J.D. Power and Associates Drives Decisions with the SAS® System

Will the cars on the drawing board today meet consumer demands of tomorrow? That's the question facing J.D. Power and Associates. The answers are coming from the SAS System.

"We produce a monthly forecast of car and truck sales for about 300 different vehicles," says Jon Rosenthal, Manager of Automotive Forecasting for J.D. Power and Associates. "Each vehicle is forecasted by month for five years beyond the current year. Right now I'm forecasting through the year 2000."

The SAS System Fits Our Business

"The SAS System is the fuel behind those forecasts...our software of choice for analyzing sales, economic, and auto industry data and then reporting what we've learned," adds Rosenthal. "Before the SAS System, much of the forecasting was done by hand. To make our forecasts credible, we had to have a credible system. One that made it easy to build applications and put them to work across our computing environments. We've got minis, Macs, desktop publishing, and a lot of spreadsheets. The SAS System fits the way we do business."

The Bottom Line is Information

Now that the forecasting model is up and running, Rosenthal and his staff are using the SAS System to build an interactive database. "The Power Information Network will allow an auto dealer or manufacturer to go online and get market information," Rosenthal explains. "When released, subscribers will be able to select from a long menu of reports and data. The versatility of the SAS System is crucial in developing the reports."

"The bottom line is this: applications are being developed with the SAS System that will deliver the most up-to-date information to those who make decisions for the automotive industry," says Rosenthal. "If manufacturers and dealers can get their hands on accurate market information and predictions, they have a much better chance of meeting customers' needs down the road."

To receive a SAS System Executive Summary, give us a call or visit us on the World Wide Web at http://www.sas.com

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The CW Guide to PDAs

Getting a grip on handhelds

Personal digital assistants are gaining ground but continue to stumble in areas such as handwriting recognition, useful applications and cost. *By Alan Radding*

JON CONRAD

"In our business, you make money when you are in the field," says Jonathan Graham, president of Nortek Group in Fort Lauderdale, Fla., an electronics contracting company that specializes in installing navigational and other systems in yachts.

To keep his people in the field, Graham issued Hewlett-Packard Co. HP 200LX handheld systems to a half dozen sales representatives and project managers.

Today, the handhelds are used for about 80% of the generic types of tasks that Nortek staff used to perform in the office at desktop computers, and the staff members return to the office only to produce large project proposals. Productivity is up, and costs are down, and Graham attributes that directly to the use of handhelds.

Spurred by experiences such as those of Nortek, personal digital assistants (PDA), or handheld computers, are attracting a small but growing following of users. These users find that the much-maligned devices save time, reduce costs and boost productivity, and thus pay for themselves every day.

But a broad, general market for handhelds is not expected to emerge until 1997 at the earliest, reports Mike McGuire, mobile products analyst at Dataquest, Inc. in San Jose, Calif. Dataquest projects sales of 5 million units by the year 2000 — a sharp contrast to this year's 400,000.

Before handhelds achieve broad acceptance, however, they have some problems to overcome. According to a recent report by Forrester Research, Inc. in Cambridge, Mass., shortcomings include incomplete communications capabilities, cumbersome desktop synchronization, the unfulfilled promise of handwriting recognition, a lack of useful applications and high cost.

Problem: Incomplete communications

The telecommunications industry has not sufficiently rolled out the wireless communications infrastructure to ensure universal PDA connectivity. Even cellular telephone and pager networks still have gaps. And where wireless networks from RAM Mobile Data USA L.P. and ARDIS Co. exist, they are costly.

Users get around the limitations of wireless communications by doing without. They are likely to wait until they can connect to a conventional wired telecommunications network. For example, Texas Utilities Electric in Dallas equips crews with Fujitsu Personal Systems, Inc.'s PoquetPad Plus handhelds to enter timecard and equipment inventory information. Despite having radio-equipped trucks, the crews wait to upload the data until they can plug in to

INSIDE:

Researchers at PC Labs put handhelds through their paces, with an evaluation of 10 products. Page 74.

Apple's MessagePad is easy to use, but there are still some barriers to communication, according to four users interviewed for Firing Line. Page 76.

Industries cash in on PDAs

There's a growing community of value-added resellers building PDA applications and interfacing them to back-office systems, notes Gerry Purdy, editor in chief of "Mobile Letter." Here are pioneers in adopting PDAs:

- **Health care** – Forms-based applications that use check boxes to monitor various aspects of patient care.
- **Field service** – Applications that deliver information to sales and service representatives in the field to facilitate interaction with customers.
- **Package delivery** – Forms-based applications that monitor the progress and status of packages from pickup to drop off.
- **Transportation/distribution** – Warehouse applications that work in conjunction with bar-coding to facilitate picking and shipping of products from inventory.
- **Insurance adjustment** – Forms-based applications that let adjusters enter measurements and pertinent information using pen-based technology.
- **Financial services** – Forms-based data collection and financial calculation.
- **Pharmaceutical** – Sales order entry, information delivery.
- **Real estate** – Application that delivers multiple listing services information.

a wired telephone jack. "We're exploring how to send in from the truck. But it is very expensive to send data over the radio network," says John Peacock, senior engineer on the project.

The solution is coming. Both ARDIS and RAM Mobile Data are expanding their networks. Eventually, Cellular Digital Packet Data should alleviate the problem in terms of geographic coverage.

Problem: Desktop synchronization

Users need to synchronize information in their PDAs with office systems. PDAs will "hit their stride when they connect to the corporate network," says Tim Schmidt, principal at Intelligent Technologies International in Orlando, Fla. "Suppose you are on the road and want to upload changes in your customer database to your office system. How do you do it? Today you don't, at least not automatically."

Desktop synchronization is its own issue. It is the process of automatically copying changes made on the road to the user's desktop system. Users must now do it manually.

Integration with systems at the office takes some ingenuity, particularly for remote users. For example, Bernea Food Services in Otsego, Mich., issues Apple Computer, Inc. MessagePads to its sales representatives, who send orders back to the office encoded in electronic-mail messages.

Better solutions to the desktop integration problem won't arrive until PDA operating systems incorporate some basic features that are essential in desktop and legacy systems, such as support for carriage returns, currently lacking in Newton, says Richard Shaffer, principal at Technologic Partners in New York.

Problem: Handwriting recognition

Some PDAs, including the MessagePad, don't accommodate keyboards, even as an add-on option, so users have to manage with pen-based input and handwriting recognition. "As an input device, the pen is miserable. It isn't good for anything more than checking boxes and signatures," says Waverly Deutsche, an analyst at Forrester Research.

"We simply don't do a lot of handwritten input," says Rick Winner, president of Carpet One State College in State College, Pa. The chain of carpet stores issues MessagePads to its salespeople, who use the devices to access information on thousands of inventory items and prices that are uploaded weekly.

The solution to the handwriting problem will come from several sources. In the long term, improvements in handwriting recognition algorithms and increased processing power will improve the quality and speed of handwriting recognition. Eventually, speech recognition may allow users to talk to their PDAs.

Problem: Application availability

While users praise some handhelds, particularly HP's LX line, for integrated general applications such as personal database, phone book, memo taker and communications, no single application has emerged to make PDAs a compelling buy. "There is no one killer application, but there may be a family of killer applications," says Gerry Purdy, editor in chief of "Mobile Letter," a newsletter in Cupertino, Calif. Such a family will likely include an automated appointment scheduler with built-in synchronization to the office scheduler, customizable personal information access agents and interpersonal messaging that "lets us send penny postcards to each other," Purdy says.

Currently, users must write their own applications. For example, Texas Utilities Electric wrote its time-card and equipment inventory applications using the PoquetPad Plus programming language. PadBase, a powerful but difficult language that is compatible with Computer Associates, Inc. Clipper database management package, will allow the company to build even more sophisticated applications, Peacock says.

But until the market grows, a standard operating system emerges and the technology and communications infrastructure improves, mass market software developers are likely to steer clear.

Problem: High cost

Prices are dropping, with basic MessagePads now going for about $600. However, once you add the options that make the devices effective, including additional memory and modems, the fully loaded cost hits $1,000 or more. "These are not cheap. The Motorola Envoy costs about $1,500," says Joyce Gavenda, an analyst at Summit Strategies in Boston. Fully configured notebook computers cost significantly less.

There is no magic solution to the problem of high cost. Normal improvements in the price/performance of technology combined with the growth of the market will eventually lead to lower prices. But with an efficient mass market not projected until the year 2000 and beyond, prices aren't expected to fall very far any time soon. Analysts say prices will have to drop below $300 and probably closer to $200 before the consumer market takes notice. ■

Radding is a freelance writer in Newton, Mass.

Buyers' checklist

PDAs and underwear are similar in that the result of your choice is either freedom or torture. To assist your selection of a PDA, reviewers at PC Labs recommend the following:

- **Set a budget range:** Remember that in many situations, the proper options make the PDA feel just right.

- **Applications:** List the applications you absolutely require. For example, if you travel, you may need features available on only a few PDAs, such as international time display, modem connection for those unserviced wireless destinations and expense reports applications.

- **Connectivity:** Wireless or modem? Can you afford another monthly bill for wireless or cellular services, or will a modem suffice? Weigh the advantages carefully because wireless and cellular are superior.

- **Graphical user interface:** Make sure you can live (and travel and see the screen) with it. Will you be using it while driving? Are there keys or buttons, and can you see them most of the time in most places?

- **Size:** Does it need to fit in your coat or suit pocket? The bigger it is, the more often it will need batteries or recharging.

Finally, users say having a personal or business support structure is invaluable. If you know others who can help you learn to make efficient use of a product, the increased productivity may pay for the unit in a short time.

The CW Guide to PDAs

During PC Lab's hands-on testing of 10 leading PDAs, it became apparent that a direct comparison of all products was not possible in the true sense of the word. Each product has an integrated set of features well suited for specific business applications and a variety of personalities and budgets.

At the low end, PDAs are advisers and travel and organizational tools. At the high end, the handheld computers are also communication and marketing tools that go beyond traditional paper-based organizational systems.

A word of warning: Before making a move, try several PDAs. They are sufficiently different from desktop PCs that there will be a learning curve that depends on your level of experience and familiarity with computers and GUIs.

Also, be clear on your goals for the PDA. If you plan to share data between your desktop computer and PDA, the ability to download PC data should factor heavily into your buying decision. If you dream of a PDA to replace your desktop, look for one with a keyboard input device you can live with — some have excellent optional external keyboards.

Review conducted by PC Labs, an independent computer testing and consulting firm in Torrance, Calif. The reviewers can be reached via the Internet at www.pclab.com.

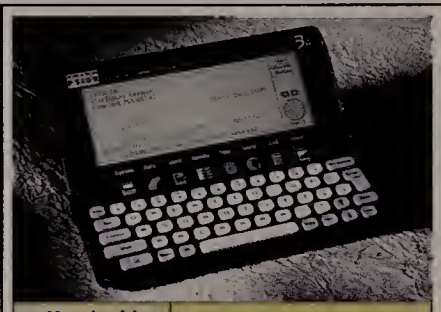
Psion

Psion, Inc.'s Psion 3A is a non-DOS product, and in this case, that is an asset because it is very fast and responsive.

The applications delivered on the unit are easy to use and moderately intuitive. The built-in word processor emulates most Microsoft Corp. Word functions and allowed us to save our files in a format that made it easy to dump them into a PC with the optional connectivity software.

On the downside, the product is not PCMCIA-compatible, uses nonstandard solid-state memory and does not support infrared.

Wrap-up: We recommend purchasing the higher memory option for data storage, backup and performance. Fully loaded, the Psion is well suited for users who cannot carry a laptop computer and are willing to use a miniature PC. In all of our tests, we found Psion worked very well.



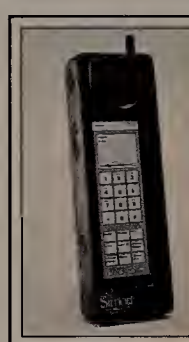
Handwriting recognition	No
CPU	8-MHz NEC V30
System RAM	1M to 2M bytes
ROM	1M byte
List price	1M-byte version: $595 2M-byte version: $695

Psion, Inc.: (508) 371-0310

Simon

Developed by BellSouth Mobility as a portable cellular telephone/PDA, Simon addresses a marketplace in which people are willing to pay not only for an organizer but also for on-line services.

Faxing from this unit is unique among the PDAs tested because the connection is cellular and real-time, as opposed to store-and-forward. But in our testing, Simon was unreliable. In several instances we could not establish a cellular connection signal strong enough to complete sending our test faxes, and we experienced several connection failures.



Handwriting recognition	No
CPU	16-MHz Intel-compatible x86
System RAM	1M byte
ROM	1M byte
List price	$899

Wrap-up: The software, applications and utilities that came loaded on Simon ran slower than those on any other PDA tested. Your best bet is to obtain an evaluation unit and use it for 30 days before deciding whether to keep it. As it stands, we do not recommend this product.

BellSouth Mobility: (800) 632-4518; http://bertha.chattanooga.net/simon/

Magic Link

Handwriting recognition	Yes
CPU	16-MHz Motorola Dragon 68349
System RAM	1M byte
ROM	4M bytes
List price	$699

The first thing we noticed about Sony Electronics, Inc.'s Magic Link is that the shape is natural to hold whether you are left-handed or right-handed — even while using the pen with your free hand. Also evident is that the large LCD screen is hard to read under many normal lighting conditions and should be backlit.

Two features give this unit executive status and add to its functionality: a small but very usable external keyboard and an external headset and connector that plugs into the unit and allows it to dial and answer the telephone.

All communications features worked and were easy to use. The documentation is excellent. The 2.4K bit/sec. modem was slow but tolerable because messages being sent from PDAs tend to be rather short and to the point.

Wrap-up: This well-designed product enables users to overlook minor weaknesses. Along with an excellent optional small external keyboard, Magic Link combines those features most important for travelers into a great package.

Sony Electronics, Inc.: (800) 571-7669; http://www.sel.sony.com

Envoy Wireless Communicator

Motorola, Inc.'s Envoy was the first product based on General Magic's Magic Cap operating system. We watched new users and found they didn't have to read much of the manual because of the intuitive graphical interface. Envoy is an Apple Computer, Inc. Newton-based version of Motorola's Marco, offering very similar services in a different box.

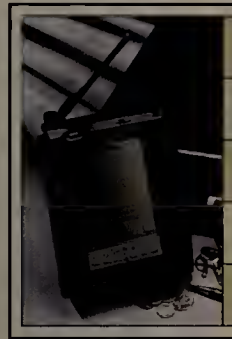
We didn't encounter memory conflict problems that other users had warned us about. Our evaluation copy was configured with an extra 512K-byte RAM card, and we didn't run out of memory. But based on the memory usage with the amount of information we loaded for our tests, we highly recommend 2M bytes for the serious user, especially if you plan to store graphics files.

Handwriting recognition	Yes
CPU	16-MHz Motorola Dragon 68349
System RAM	1M byte
ROM	4M bytes
List price	$1,000-$1,500, depending on service bundle

Wrap-up: Our test results indicate that Envoy is practical and reliable. It's suitable for heavy use and frequent travel and is capable of providing reliable messaging services. With the easy-to-use Magic Cap operating system, users will enjoy a superior product with a comparatively short learning curve.

Motorola, Inc.: (800) 894-7353; http://www.motorola.com

Marco Wireless Communicator



Handwriting recognition	Yes
CPU	20-MHz ARM Ltd. 610
System RAM	1M byte
ROM	5M bytes
List price	$900-$1,400, depending on service bundle

We had mixed feelings about Motorola, Inc.'s Marco but concluded that its wireless communications capabilities give it strong corporate appeal. It keeps in touch no matter where you are.

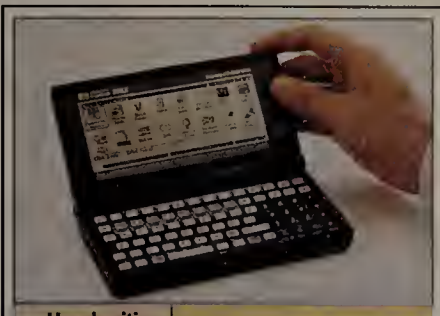
We sent and received messages without problems, and messages were delivered surprisingly fast to addresses on the Internet (1 minute, 45 seconds), MCI (3 minutes), America Online (4 minutes), CompuServe (4 minutes) and a CC:Mail gateway on CompuServe (9 minutes). After sending mail, users can forget about the process — the mail gets there. When we received mail from other Marco users, one click added their "card" to our database.

Handwriting recognition was a little slow, and we had to adapt our writing style to Marco. Oftentimes it was more practical to use the on-screen keypad.

Wrap-up: Motorola's name and reputation will instill confidence in many buyers. Although on the bulky side and not as inconspicuous as some of the other PDAs, Marco is well built and its interface is moderately easy to learn.

Motorola, Inc.: (800) 894-7353; http://www:motorola.com

HP 200LX



Handwriting recognition	No
CPU	7.91-MHz Intel 80186
System RAM	1M byte
ROM	3M bytes
List price	$549/$699

Hewlett-Packard Co.'s HP 200LX looks like an expensive calculator that easily fits into a suit or coat pocket. This PDA ships with many applications, including CC:Mail Mobile, LapLink Remote, Lotus' 1-2-3 and Pocket Quicken, and runs MS-DOS 5.0.

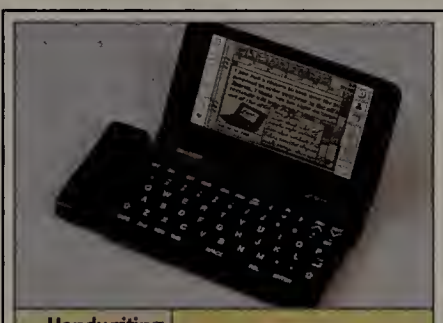
Those of us familiar with DOS quickly figured out the applications and keyboard. The keyboard is organized much like a miniature desktop PC with the function keys at the top and numeric keypad on the right. Calculator-size keys provided solid tactile response, and the screen was clear, with good contrast under most lighting conditions.

This is not a pen-based PDA and does not suffer the same design and display constraints. Some fonts displayed in the menus are extremely small, and users with impaired vision may have problems reading them.

Wrap-up: Documentation is thorough and clearly in the HP technical style. There are publications for 200LX users that will ease the learning curve. The product is HP solid and reliable.

Hewlett-Packard Co.: (800) 444-1254; http://www.hp.com

Zaurus K-PDA ZR-5000/FX



Handwriting recognition	No
CPU	Sharp custom
System RAM	1M byte
ROM	1M byte
List price	$499 $599 with fax/modem

Sharp Electronics Corp.'s Zaurus ZR-5000 falls into a category between those PDAs that don't have pen input or recognition capabilities, such as Psion Series 3A and HP 200LX, and those that do, such as Magic Link, MessagePad and Envoy.

The keyboard shows careful design and has an audible click. The function keys are located both above and below the alphanumeric keys and are clearly marked. The Zaurus screen is logically organized with seven touch-sensitive icons on the left and right of the screen.

While testing screen readability, we found it difficult to read while sitting in restaurants and offices located near windows and frequently had to reposition ourselves to avoid reflection.

Wrap-up: We highly recommend purchasing the higher memory option for data storage, backup and performance. Although its screen/keyboard layout is slightly uncomfortable, Zaurus meets a clearly defined set of needs, has superior infrared communication capabilities and is reliable on the road.

Sharp Electronics Corp.: (800) 237-4277

PoquetPad Plus

Handwriting recognition	Yes
CPU	NEC V30
System RAM	2M bytes
ROM	2M bytes
List price	$900 to $1,400

Fujitsu Personal Systems, Inc.'s PoquetPad Plus pen-based DOS computer is the largest of the PDAs we reviewed.

Its massive (comparatively speaking) 7¼-in. diagonal transflective LCD display with backlight on demand and 640- by 200-pixel resolution makes it the easiest to read in almost any lighting.

For review purposes, the PDA came with three forms-based demos loaded in read-only memory: Pharmacology, Shipping and Inventory. Applications ran very fast, and the pen-based forms input screens were responsive to handwriting using the heavy spring-loaded, nylon-tipped pen.

Wrap-up: In an environment with wireless LANs and custom applications written with PenRight Pro, Power Pen Pal and PadBase, this multiported, wireless LAN-connectable PDA will survive. Of the PDAs we tested, it's the most suited for custom application development, with lots of space for complex and easy horizontal application development and deployment.

Fujitsu Personal Systems, Inc.: (800) 831-3183

Casio Z-7000

One of the first PDAs to hit the market, Casio, Inc.'s Casio Z-7000 (Zoomer) comes jam-packed with built-in applications such as America Online, Pocket Quicken, Address book and Date book.

Zoomer uses Geoworks, Inc.'s Geos operating system, which is acceptably responsive. Zoomer is easy to use, very intuitive and runs software that looks and feels enough like desktop computer software applications to make the learning curve minimal.

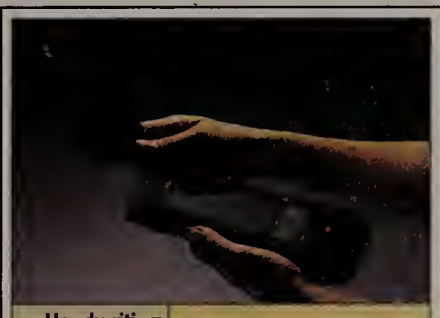
Handwriting recognition	Yes
CPU	7.5-MHz x86 Casio custom
System RAM	1M byte
ROM	4M bytes
List price	$499

The Zoomer we tested had a very responsive touch screen and was easy to hold in one hand while we wrote or pressed on the screen menus with either of the pens available.

Wrap-up: We recommend the Palm Connect software memory option with Zoomer for data entry and backup. Its interface is not as intuitive as that of the Magic Cap operating system. The screen is at times difficult to read, and the interface depends heavily on menus for pen input. Zoomer is reliable on the road.

Casio, Inc.: (201) 361-5400; http://www.grot.com/zoomer/

MessagePad 120



Handwriting recognition	Yes
CPU	20-MHz ARM Ltd. 610
System RAM	1M to 2M bytes
ROM	4M to 8M bytes
List price	1M byte: $599 2M bytes: $699

Not only does Apple Computer, Inc.'s MessagePad come with 2M bytes of RAM, flip-over cover, PCMCIA Type II slot and an elegant stylus, but it also comes ready to run a staggering variety of software and a host of Apple and third-party add-ons such as wireless communication setups.

Of all the PDAs tested, we found the MessagePad 120 to have a remarkably strong support base of developers, user groups and shrewd, well-supported on-line sources for tips and software. One strike is size. Although it is still a lot smaller than a notebook computer, the product is large compared with most PDAs.

Wrap-up: Our testing results indicate this product is practical, reliable and has features needed by most users with a wide variety of needs. We recommend this product for anyone who does not require a PDA with built-in wireless capabilities and is willing to use an external modem.

Apple Computer, Inc.: (800) 776-2333; http://www.apple.com

FIRING LINE

Custom programs broaden MessagePad's appeal

By Kevin Burden

You are not alone if you are unable to find a significant business use for Apple Computer, Inc.'s MessagePad. When equipped with only commercial software, the MessagePad, which is based on Apple's Newton technology, is at best a good assistant.

But through custom-developed applications, the firms in this evaluation are taking full advantage of MessagePad's portability and computing power.

▶ A food safety inspection agency equipped 120 field agents with MessagePads and special auditing software from Wright Strategies in Solana Beach, Calif., to help the agents conduct restaurant evaluations.

▶ Physicians at a health care company use point-of-care software from Forest Software, Inc. in Aspen, Colo., to capture diagnosis and billing information at bedside.

▶ An auto dealership outfitted its salespeople with a menu pricing system.

▶ A farming company uses software from Monsanto Co. in St. Louis to collect and analyze crop data from the fields.

"The [custom] application is what makes [MessagePad] useful," a user at the inspection agency says. "Without it, we would probably be using a completely different computer or have stuck with paper."

Apple MessagePad 120

Evaluations by four users

Ratings are based on a 1 to 10 scale where 10 is most satisfied

	Food service auditors	Auto dealership	Health care company	Farming company
Application and peripheral availability Finding peripherals is much easier now that newly compatible third-party products are more available.	7	7	5	7
Synchronizing with desktop Extremely easy when sitting at the office. Synchronizing remotely is still impossible.	10	3	6	6
Support Evaluators relied on the convenience of Apple's return policy for hardware fixes.	8	3	10	5
Value for the dollar Computing power, relatively low price and low training expense equal high value.	8	10	9	8
Refinement of MessagePad 120's handwriting recognition over older models	Not used	Improved	Much improved	Much improved
Handwriting recognition of the MessagePad 120	Not used	Poor	Poor, acceptable after training	Acceptable

Applications and peripherals

Buying Apple-made MessagePad peripherals has been more difficult than buying actual MessagePad units, users say. Fortunately, recent third-party support and bulk purchases have alleviated this problem.

"It's still hard to get [MessagePad] external modems and internal PCMCIA modems [from Apple], but third-party products are now all over the place," says a user at the health care company. A user at the inspection agency says, "We're not buying on a one-by-one basis, which seems to make placing orders easier. Our difficulties have been with short-demand items like flash memory cards and print packs that we order as we need."

Custom applications eliminated most software availability hassles, though even commercial applications posed only minor problems. "We can't find everything we need. But the chance that it's available for [MessagePad] is higher than any other" personal digital assistants, a user at the health care company says.

Synchronizing handhelds with PCs

Newton Connection Kit provides a physical link to align data among MessagePads, PCs and Macintoshes. But from the road, synchronization is futile.

However, communication is not impossible. Data files can be passed back and forth with Newton-compatible modems, although it's up to the user to work around the problems of unsynchronized computers.

For some users, it's not a problem. "As long as our auditors [modem] their inspection reports to the home office, the job is done," a user at the inspection agency says.

Support

Repairing MessagePad hardware was not cost-effective for evaluators, but Apple accepts returns. "I sent mine back to Apple after dropping it in a sink. They dried it out and sent it back in two days," a user at the health care company says. "It's not worth the expense learning how to fix the Pads while Apple has this service."

Apple's technical support did not receive the same raves. Apple "doesn't have a very knowledgeable phone staff. They can handle basic user questions, but development questions usually go over their heads," a user at the auto dealership says.

Value

Easy to learn also translates into easy to own. Most of what makes owning a PC so expensive beyond the initial purchase price is training, an expense that is almost nonexistent with the MessagePad.

"Those who knew computers taught themselves. For others, we made a training video," a user at the inspection agency says. The evaluators' average cost of ownership was less than $1,200 per user. ■

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard.

Apple responds

While Apple's policy of not discussing unannounced products leaves a few questions unanswered, an Apple spokesperson attempts to clear up some issues with the following response.

File backup

Today, users cannot selectively back up files. We know our customers want this capability, and we plan to address it soon.

Remote synchronization

We want to support remote synchronization in the near future, but currently it is not possible.

Handwriting recognition

We continue to push the envelope in recognition. For users we do not satisfy, pop-up menus, radio buttons, synchronization and infrared provide alternative input options.

Tech Notes

PDAs (a.k.a. handhelds, pen-based devices, nonpen-based devices, palmtops — take your pick) evoke two standard responses when a user first tries them: "It doesn't recognize my handwriting," or, for the nonpen devices, "The keyboard is too small."

There were revisions made to Apple's MessagePad between my first test of one and the current MessagePad 120. But it still doesn't recognize my handwriting. I suppose I shouldn't hold that against any computer because even my wife can't read my scribble. And, yes, the keyboards are too small on devices such as Hewlett-Packard's HP 200LX.

One conclusion you can draw from our lead story in The CW Guide to PDAs and our evaluations of 10 handhelds is that products such as the MessagePad have miles to go before they can really help you write memos or take detailed notes. However, for forms-based applications, where users need to check off boxes, write a few words or record a signature, today's high-end PDAs do the job.

Computerworld senior researcher Kevin Burden notes that even for individual users, the MessagePad can be a useful tool. "Toting around a list manager or flat-file database might be a convenience I could learn to rely on," he says.

Given the choice, I'd take the HP 200LX over the MessagePad as an organizer. The HP 200LX can handle your schedule, track your finances and help you take a few notes. The interface is just enough like a PC to make the difference when compared with the MessagePad.

All PDAs still have flaws whether in terms of communication capabilities, displays, handwriting recognition or cost. The key, however, is that today we are able to discuss them as useful corporate tools. That wasn't so even two years ago.

James M. Connolly
Technology evaluations editor

The *Computerworld* Guide team welcomes user comments and suggestions for upcoming features on Desktop Database Management Systems and Client/Server Financial Applications. How are these technologies helping your organization? What is it about them that keeps you awake at night? **Send electronic mail to jconnolly@cw.com.**

In Depth

SUPPORT Shouldn't Be This TOUGH

MANAGING PRODUCT SUPPORT IN A MULTIVENDOR, OPEN SYSTEMS WORLD DEMANDS THAT INFORMATION SYSTEMS MANAGERS PLAY THE ROLES OF REFEREE AND COACH

By John Mayer

JAMES SCHNEPF

FEUDING VENDORS *forced John DaSilva, systems development manager at Gas Research, to bring multivendor systems support in-house. Unfortunately, DaSilva says, 'it's time-consuming.' And there's no chance of hiring more staff.*

WHY WORRY, John DaSilva thought, the systems integrator will handle it.

To DaSilva, systems development manager at the Gas Research Institute, the problem seemed simple enough. Coordinate the fax server, which is set up for direct dial-in, with the electronic-mail system, so that any time a user receives a fax, he is automatically notified via E-mail. Just get the E-mail and fax server software to work together. No problem, right?

THINK AGAIN. As weeks dragged on with little progress, DaSilva went to the integrator that supplied his fax and E-mail software and demanded results. "It's either working by this date, or it's out of here," he told the company.

He still got no resolution. Why? "We finally discovered that the fax and E-mail software vendors weren't talking to each other," he says.

So DaSilva quickly called a conference with the two vendors that weren't talking and the integrator and demanded firm dates for when each vendor would fix its respective piece.

Welcome to the brave new world of product support. Dragging vendors kicking and screaming to support their products is a fact of life in a multivendor, open systems environment, corporate information technology managers say. You must be able to communicate effectively with a wide range of vendors, and the success of your system often rides on how well vendors communicate with one another. Throw in the multiple permutations and constantly evolving software configurations that client/server brings and you have a support nightmare in the making.

For Chicago-based Gas Research, it's back to Square 1. DaSilva's firm now handles support for each of its vendors and coordinates the pieces itself. "No one else is doing things like we're doing them, so we're basically on our own," DaSilva says. "It's time-consuming," especially given that DaSilva isn't able to hire any more staff.

The tricky part, notes Cary Serif, manager of applied technologies at Huntington Bancshares, Inc. in Columbus, Ohio, "is getting a vendor to acknowledge that a problem could possibly be its responsibility."

Serif recently completed a complex client/server implementation that integrates telecommunications, data communications, document imaging and multimedia capabilities across a network for a banking application. At one point, the network vendor, the operating systems vendor and an applications vendor were all blaming one another for an incompatibility problem. None of the vendors wanted to work with the others.

After a series of conference calls, Serif and the vendors tracked the problem to a network driver, which the network vendor fixed.

"We were able to get the vendors to put aside their emotions for the time being and have them go in and take a look at their code. That's

Support, *page 80*

Mayer is a freelance technology writer in Belmont, Mass.

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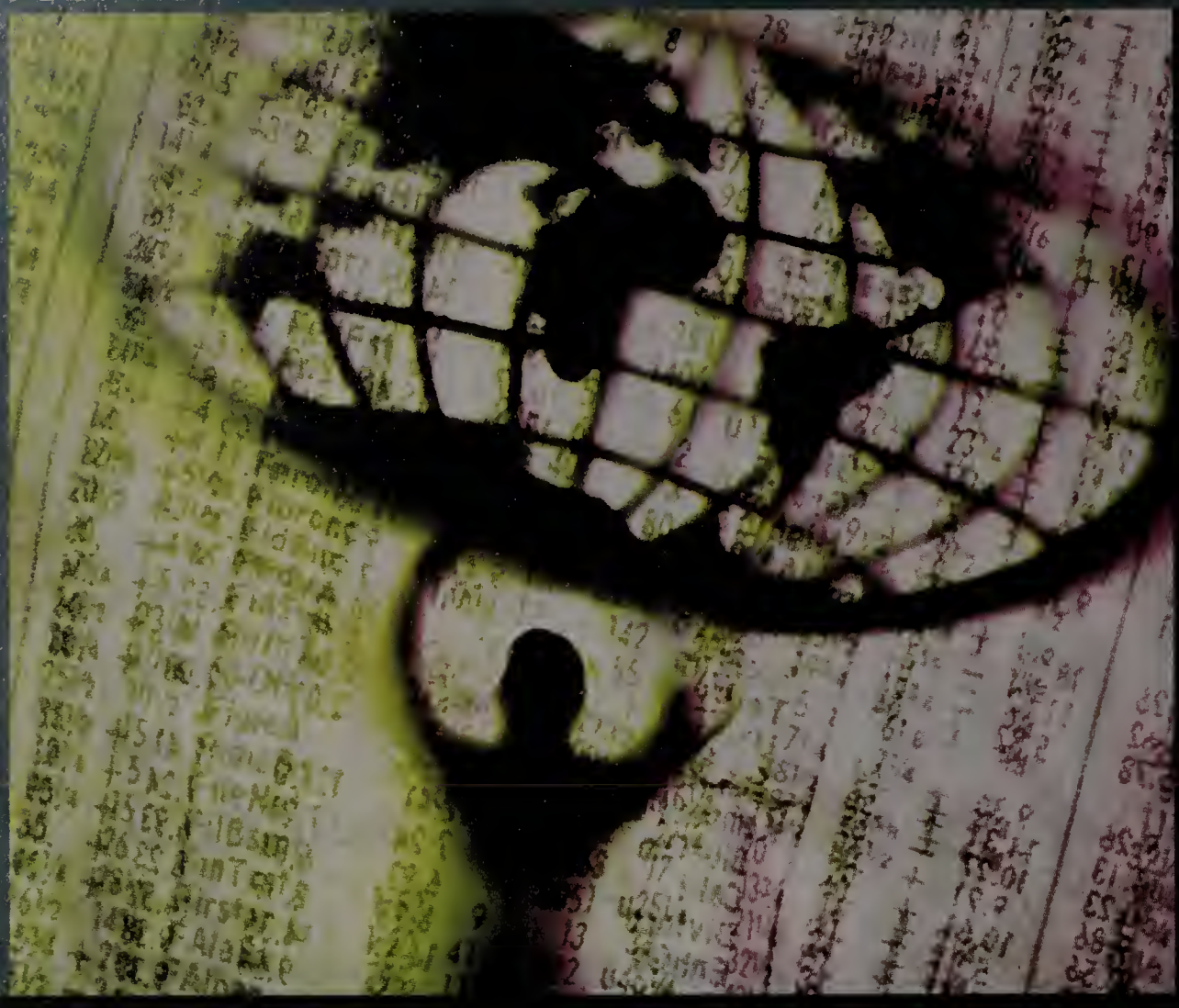

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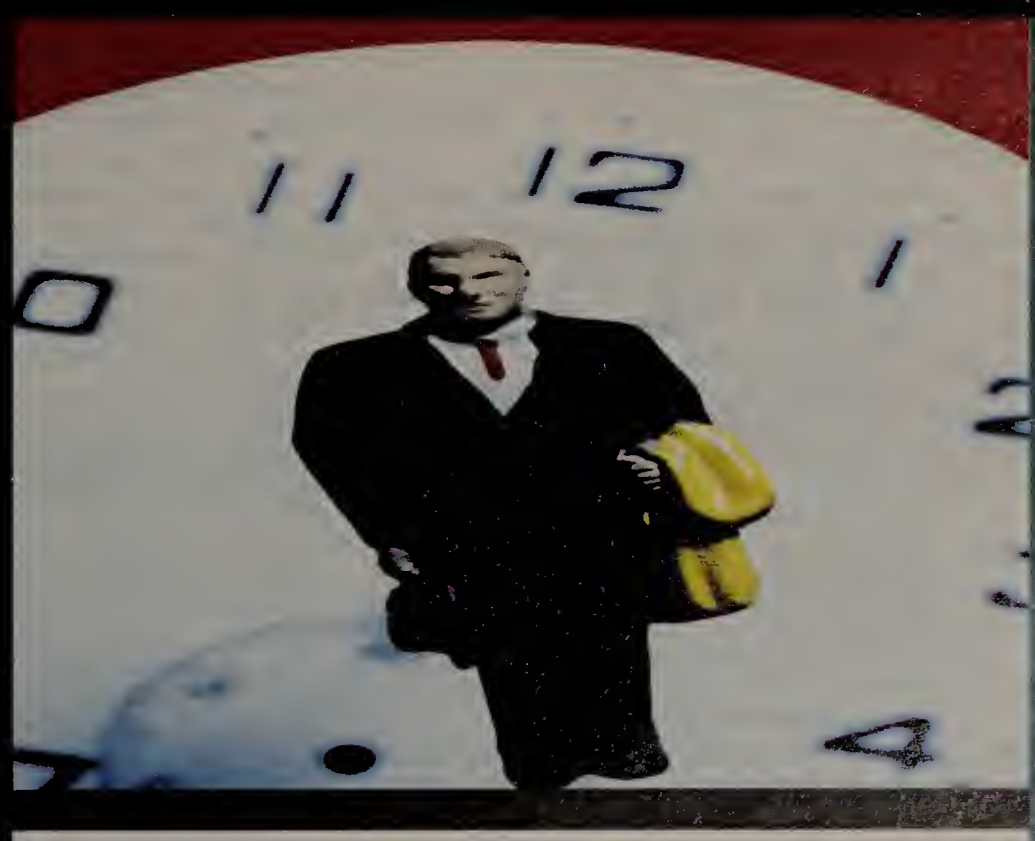

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SUPPORT Shouldn't Be This TOUGH

Continued from page 77

really the first step. Once they start going through their code, they'll usually swing in your direction," Serif says.

Looking outside

But how do you handle support when you're dealing with tens or hundreds of vendors? For a growing number of understaffed, overworked information technology departments, outsourcing is the only answer.

"If they make it, we have it," says Ann Sayler, operations leader in the systems engineering architecture organization at Hughes Space and Communications Division in El Segundo, Calif. "It" happens to be databases from Oracle Corp. and Sybase, Inc. as well as CA-Ingres from Computer Associates International, Inc. and hardware from NCR Corp., Hewlett-Packard Co. and Sun Microsystems, Inc.

With almost 75% of its legacy data moved to a client/server environment, Sayler's organization has tried nearly every vendor support configuration possible.

Sayler's education in product support began with her company's first client/server implementation about three years ago. Hughes chose Cambridge Technology Partners in Cambridge, Mass., to set up the system, and once that company completed the implementation, Hughes took over maintenance and support. "We discovered that the learning curve for us to take over was tremendous," she says. "It became a full-time job for me."

For the next major development, a manufacturing resource planning project, Hughes turned to Fourth Shift Corp. in Minneapolis for implementation and maintenance of its software product called Just-in-Time. The project turned out to be a challenge for the small, undercapitalized supplier, so Hughes brought in AT&T Corp. as a systems integrator.

"That relationship is two years down the road, and it's had its ups and downs," Sayler says. "AT&T wasn't as active as we would have liked in the role of systems integrator."

Today Sayler is creating a virtual organization that combines a few large vendors with Hughes' own organization. Vendors report directly to Hughes personnel. Electronic Data Systems Corp. supplies hardware support, and Hughes is negotiating a partnership with Oracle to support software applications. "Many of the software providers are working closely with Oracle anyway, trying to get their own products onto Oracle's latest release," she notes.

As the number of products Hughes uses proliferates, Sayler says it becomes much more cost-effective to look to a firm such as Oracle that works with the software vendors in the market to handle integration and support.

To interface with vendors, Hughes is considering a team approach. Sayler says she expects a team with members from systems engineering, production and information technology management to handle all negotiations and communications with vendors.

Firms such as Gas Research that are trying to provide product support in-house typically work through a centralized help desk but also leave some latitude for users to deal directly with the vendor.

For the suite of software applications Gas Research supports, users have a choice. "If the problem is on the technical side, users can call our help desk and [IS] will deal directly with the vendor," Da-Silva says. "If the problem pertains more to how to use a piece of software, we'll let the user deal directly with the vendor rather than let him or her work through multiple interpretations of the problem. If it's a package we don't support, it's basically up to the user to go to the vendor directly."

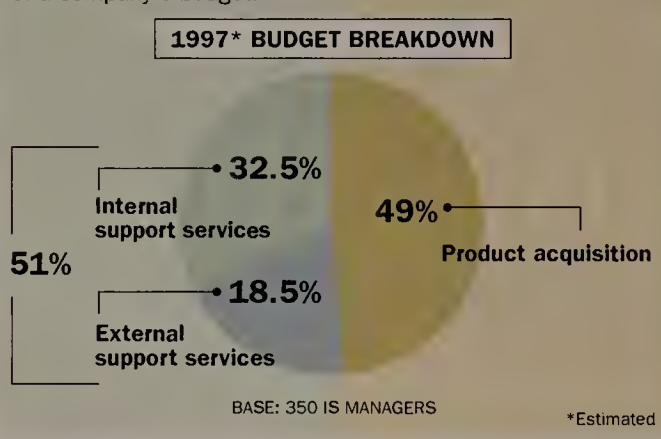
The trick to outsourcing support is finding the right third-party expertise, corporate managers say. "I haven't found outsourcing to be very successful," Serif says. "You have to find very good people, and they're hard to find."

The rising complexity of open systems environments makes it virtually impossible for any one service provider to handle support for large systems. "If a company has made a transition to an Intel processor-based, Novell and Microsoft [operating system]-based system distributing processing over an Ethernet LAN, to a large extent, there's no single vendor that's fully competent to support it all," says Peter Raulerson, president of Para Technology, a Bellevue, Wash., consulting firm that tracks support and service providers and systems integrators.

As the software industry evolves, support providers are, likewise, increasingly specializing in areas such as groupware, relational databases or object-oriented programming, he says. "It often pays for [information technology] management to bring in a specialist firm or several specialist firms to cover the range of things you need, rather than turn to a generalist firm to do it all," he says. ■

A bite out of your budget

Companies will spend an estimated 49.6% of their 1995 budgets on support, with the balance spent on product acquisition. In two years, support will eat up more than half of a company's budget.



Source: Dataquest, Inc.

Fingerpointing relief

While no man is an island, as poet John Donne once wrote, software vendors have presented a pretty good likeness when it comes to product support. In most multivendor environments, it's a rare vendor that will volunteer to work with another vendor to solve a support problem.

There are some subtle signs that the winds may be changing, though, and that information technology managers' demands that vendors provide support for their products in other vendors' environments are finally being heard. Consider the following:

- **Hewlett-Packard Co.** and **Computer Associates International, Inc.** announced that they would bundle their respective OpenView and CA-Unicenter products together and offer a single source of support.

- **Microsoft Corp.** and **Novell, Inc.** announced their intention to support each other's products at companies that use both products. The two software giants agreed to write documentation jointly and co-sponsor forums and training sessions.

And in a move that may signal a turning point in the relentless fingerpointing that characterizes many multivendor support environments, Microsoft and Novell also announced they will attempt to solve support problems by talking to each other rather than by referring the customer to the other vendor.

"More and more software vendors are finally recognizing that once they get the call, they own the problem or have to help the customer resolve the problem," observes Jeffrey M. Kaplan, director of network communications at Dataquest, Inc. in Westboro, Mass.

Taking control of outsourcers

The following are the three rules for dealing with outsourcers, says outsourcing industry watcher Peter Raulerson, president of Para Technology:

RULE 1 Be as explicit as possible about your relationship up front. Write down all job requirements, get written specifications or statements of work and document all activity and results.

"You've got to make sure you think about all the issues that you're going to have to deal with ahead of time," says Cary Serif, an IS manager at Huntington Bancshares. "For one part of a recent project, we spent more time writing the contract than we actually spent doing the work."

RULE 2 Ensure that there's a transfer of knowledge from the outside consultant to your team. "We're not looking to learn everything that vendor knows," notes Ann Sayler, an IS manager at Hughes. "We're looking to retain enough expertise to understand where the knowledge is and understand how to bring aspects of that knowledge together to solve a business problem."

RULE 3 Follow good management practices. Define the objective, allocate sufficient funding and then measure how well the project is progressing and take corrective action if necessary.

"Many people assume the contractor will manage itself," Raulerson says. "That's not necessarily a good assumption."

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Keeping current

Demand for Unix application developers who can program in object-oriented languages continues to exceed supply

By Monua Janah

As distributed computing becomes the norm, familiarity with Unix alone won't be enough. Soon, application developers will need a solid background in object-oriented languages.

"The person who is familiar with the front-end tools will displace the pure Unix person," says Jim Knowles, head of the client/server practice at Coopers & Lybrand in Edison, N.J. "Rather than in-depth Unix internals, they will need to understand APIs and networking. They will need to understand Visual Basic, PowerBuilder and SQL."

Object-oriented programmers are fiercely sought, but because of the dearth of candidates, recruiters often settle for procedural programmers — those who write structured, non-object-oriented code — and retrain them.

"Typically, the companies we own are looking for generalized skills rather than specific knowledge because the technology is changing so rapidly," says Lew Krumm, director of software operations at Seagate Technology, Inc. in Scotts Valley, Calif. "That means someone who knows fundamental good programming techniques and how to break down a task so it's manageable and deliverable."

Finance with a twist

In the finance sector, as might be expected, recruiters are looking for programmers who also understand the business.

"The IS professional has to be more business-oriented, must understand trading. The technical part is only half of what comprises a good candidate," says Peter Castillo, technical staff recruiter on contract at Citibank NA in New York.

In fact, Castillo says he stays away from programmers who've been making the rounds of the big New York financial houses. "I prefer candidates from out of the tristate area. People here are expensive. They are running the cycle of one brokerage house or bank to another. I'd rather find fresh blood," he says.

If you have delivered an object-oriented project, you're a hot commodity. More companies are trying object-oriented projects even though they take more time up front. "The nice things about object orientation are that you get a lot of code reuse and products are much easier to maintain," says Todd Scallan, business development manager at Black & White Software, an application development company in Campbell, Calif. The company "looks for people who are strong in C++ and object-oriented design and in GUIs, particularly X and Motif," he says.

> **"Programmers should be anticipating and learning about upcoming standards. For example, the OMG CORBA standard applying to client/server object-oriented programming has been endorsed by many companies."**
>
> Todd Scallan, business development manager, Black & White Software

As object-oriented technology gains critical mass, it is developing industry standards, Scallan says.

"Programmers should be anticipating and learning about upcoming standards. For example, the OMG CORBA standard applying to client/server object-oriented programming has been endorsed by many companies," he says.

For programmers who must be trained to write object-oriented code, the process can be long and painful or relatively simple. Krumm says there's a generational difference. "Programmers who have been procedural programmers for years must make a conceptual shift. For 18-year-olds, [object-oriented technology] is the only thing they know. They have no baggage to get rid of," he says.

Moreover, if you have delivered a fully object-oriented project, you're something of a rarity. "A lot of candidates say they are programming in C++, but they haven't really developed in an object-oriented language," Castillo says. ■

Pencom Systems, Inc. annually estimates average salaries for IS professionals. Estimates for devetopers with four to six years' experience include the foltowing:

	NEW YORK	AUSTIN, TEXAS
C application developer	$65,000	$44,000
Object-oriented programmer	$68,000	$47,000
Database application programmer	$62,000	$47,000

Janah is a freelance writer in San Francisco.

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TOO DARN HOT!

As the software industry heats up, it's turning to IS for cool relief

By Leslie Goff

As demand for off-the-shelf client/server software continues to intensify and software companies hustle to grab market share, the heat is on to respond to rapidly shifting business requirements. The resulting forecast for information systems professionals: clear, sunny and hot.

In the electronics industry, which added 111,000 employees last year, software development is one of the fastest growing segments, says Roger Stabile, an analyst at the American Electronics Association in Washington. The industry created more than 17,000 jobs last year, and there was double-digit growth in computer programming services, an area that combines internal IS and external technical support.

Demand is especially high in the desktop software segment. "All segments of the software industry are becoming more competitive, but especially the shrink-wrapped, off-the-shelf software suppliers," says Mary Shourds, a partner in the recruitment firm Houze, Shourds & Montgomery, Inc. in Long Beach, Calif. "And to that degree, there are demands placed on the IS organization and new requirements for the CIO and the team to be especially nimble and responsive."

In fact, IS managers say they are under constant pressure to develop and enhance systems for order entry and tracking, inventory and distribution, electronic commerce, customer service and support and financials.

For example, 14-month-old Netscape Communications Corp. in Mountain View, Calif., is booming with the success of its Netscape navigator and browser products and is bringing an electronic storefront on-line. At the same time, the IS staff is integrating the external application with back-end order entry and inventory tracking systems, says Bob Plummer, IS director.

"We're implementing an Oracle data warehouse to tie the Internet app to the back-end legacy system in real time," he says. "Because of the company's rapid growth, we have had to shift from first-gear type systems to fourth-gear systems in one fell swoop."

To avoid increasing his permanent staff too quickly, Plummer has brought in contract employees to assist in the storefront effort. But he says he plans to double his seven-person staff by year's end as he fills business analyst and systems administration positions.

Netscape's project underscores the challenges faced by rapidly growing desktop software makers in a quickly consolidating market. "The demands placed upon our organization are sometimes very spontaneous, and we must be positioned to meet our internal customer needs," says Liz Marin, human resources consultant to the IS group at Sybase, Inc., in Emeryville, Calif. "And we don't always have a lot of ramp-up time to respond, so we recruit people who are flexible and multiskilled."

Marin says Sybase will increase its 200-member IS staff significantly this year, adding 40 to 60 application programmers, project leaders, systems administrators, voice and data networking specialists and help desk personnel.

Mainframes a different story

At mainframe software makers, hiring projections are not as aggressive. John Challenger, executive vice president at outplacement firm Challenger, Grey & Christmas, Inc. in Chicago, says that for now and in the future, "there's more range of opportunity on the desktop side."

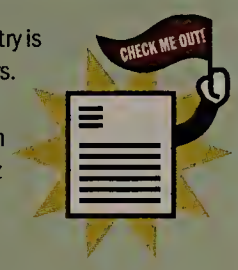
Many mainframe software vendors are downsizing their operations product lines to client/server platforms. The emphasis is on retraining staff, consolidating data centers and outsourcing noncritical functions.

The application development division at Sterling Software, Inc. in Atlanta, for example, is not hiring because it is still working out staff and resource issues related to an acquisition six months ago, says Mark Miller, IS director for the division. But, he adds, "We're always looking for good people with relevant experience in tracking the life cycle of a product." ■

Goff is a freelance writer in New York.

Software aspirations require diverse resumes

Fancy yourself working in software? One way to get a toehold in the industry is to establish direct relationships with your present employer's software vendors. Motivated employees who demonstrate a particular finesse in using or troubleshooting vendor products make attractive job candidates. "They have both the perspectives of our customer community and the IS community," says Liz Marin, human resources consultant to the IS group at Sybase.



Once you've done that, organize your resume to do the following:

- Reflect any projects you have worked on that relate to the vendor's core applications and any previous experience related to their core business. For example, you won't get a job at Sybase without relational database experience, and you won't get one at Netscape without Internet experience.
- Reveal as much diversity as possible. Software companies need multifaceted staff who can support their products on a number of platforms. Other advantages include prior participation in a retooling or business process re-engineering effort and systems integration experience.

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We are searching for an individual who will be responsible for developing database applications for the Hyperion® Financials product line. We require a minimum of eight years experience with at least five years of UNIX experience and four years of either Sybase or Oracle, either DB-Lib, CT-Lib or OCI, SQL, OLTP, and client/server. Must have at least one year of C++. Please send resume and salary requirements to: **ATTN: HR-UNIX, FAX# 203/322-3904**.

Database Developer

This individual would be responsible for developing database applications for the Hyperion® Financials product line. We require a minimum of five years experience with either Sybase or Oracle, with at least one year of System 10 or Oracle 7. In addition, we require strong logical and physical data modeling skills, ERD creation and methodology using Upper CASE tools, experience with OLTP, Transact SQL, triggers and stored procedures. UNIX knowledge is a plus. Please send resume and salary requirements to: **ATTN: HR-DD, FAX# 203/322-3904**.

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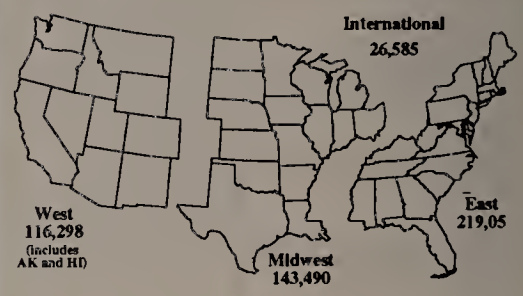

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- PL/1, JCL, IMS with one or more of: DB2, Telon, QMF, on line or batch programming IMS or VSAM. Minimum 2 yrs. experience.

Supporting Financial and associated applications

- Telon/COBOL, DB2 batch programming, JCL, TSO Utilities. Minimum 2 yrs. experience with Telon.
- PL/1 and SAS programming. Minimum 1 yr. experience with each. VSAM preferred.

Please forward your resume with cover letter stating position of interest to:

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Direct report to VP of Technology Planning and Architecture. Design of infrastructure to provide access to CRS data. Preferred experience with structured data access techniques, protocols, APIs, GUIs, functional processors, remote procedure calls, TPF systems, multimedia development toolkits and general 3rd party interface requirements for accessing CRS data and integrating with other data sources and suppliers.

MULTIMEDIA DESIGNER/INTEGRATOR - DALLAS/FT. WORTH

Design and integrate multimedia applications. Prefer experience with protocols, APIs, GUIs, remote procedure calls, multimedia development toolkits, including authoring tools such as Macromedia Director or Authorware PRO. Photoshop tools, video and sound editing tools. Previous experience with general 3rd party interface requirements for accessing CRS data as well as integrating with other data sources and suppliers. Solid background in Visual Basic and C++.

PRODUCT PLANNER - DALLAS/FT. WORTH

- Requires a background in sales, marketing or product management of distributed systems equipment and services. Experience developing internal sales and marketing documentation, business plans and competitive analysis required. A Bachelor's degree and strong oral and written communication skills are necessary. Knowledge of financial analysis and budgeting desirable.

NETWORK/SYSTEMS MANAGEMENT SENIOR DESIGN SPECIALIST - DALLAS/FT. WORTH

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5+ yrs. UNIX Systems Administration experience required. Experience with SUN Solaris, HP/UNIX, and/or IBM/AIX preferred.

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Previous systems programming experience with IMS and DB2 required. Experience with BMC products, mainframe assembler, REXX and MICS a plus.

PROGRAMMER ANALYST - TULSA, OK

Programming experience in PL/1 and/or COBOL, JCL, ISPF, CLIST, and REXX. Experience with mainframe assembler, REXX, DB2, IMS, SAS, or MICS a plus.

MANAGER, DATA CENTER CONNECTIVITY RESOURCE PLANNING - TULSA, OK

Manage a large connectivity planning team of analysts responsible for end-to-end capacity planning tasks and functions. Experience with DEC, IBM, STRATUS, SUN, SP2 and CISCO equipment a plus. Knowledge of VMS, UNIX, VOS and AIX operating systems an advantage.

MANAGER, DATA CENTER COMMERCIAL RESOURCE PLANNING - TULSA, OK

Manage a large connectivity planning team of analysts responsible for end-to-end capacity planning tasks and functions. Experience with Hitachi, IBM and AT&T equipment a plus. Knowledge of MVS, UNIX, AIX and Teradata operating systems an advantage. Manager positions require a minimum of 5 yrs. IMS experience plus 2 + yrs. capacity planning leadership. Must have previous experience in product management, quality management, and vendor interface. Strong leadership skills with heavy customer engagement experience required. Additional requirements include excellent written and verbal communication skills and proven interpersonal and management skills.

DATA CENTER CUSTOMER SERVICES REPRESENTATIVES - TULSA, OK

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Minimum of 3 yrs. "C" programming experience in a STRATUS/VOS environment required. Experience with communication software X.25 and SNA preferred.

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Performs installation and support of Data and Voice Communications equipment; including software loads and troubleshooting. Related College degree and netware certification required.

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SOFTWARE DESIGN ENGINEER. BY AUGUST 3, 1995, PLEASE SEND RESUME TO: EMPLOYMENT SECURITY DEPARTMENT, E&T Division, Job # 492647, P.O. Box 9046, Olympia, WA 98507-9046. **Job Order Number must be indicated on your response.** JOB DESCRIPTION: Designs, implements and tests software for micro computers under limited supervision. Designs and implements client/server communication modules, that run on Windows and advanced multitasking/multithreaded operating systems and that support TCP/IP, IPX/SPX, NetBIOS and other protocols, for software product to connect personal computer networks and IBM mainframe systems. Utilizes "C" and 80386 Assembler languages. REQUIREMENTS: Master's degree in Electrical Engineering, Computer Science, Mathematics or Physics; Two years experience in job offered or two years of work experience in designing and implementing networking applications using TCP/IP, IPX/SPX, or NetBIOS protocols; and designing and implementing software utilizing "C" language. Experience must include one year of work experience in designing and implementing software to run on Windows and multitasking/multithreaded operating systems. Experience may be gained concurrently. MUST HAVE PROOF OF LEGAL AUTHORITY TO WORK IN THE UNITED STATES. JOB LOCATION: Seattle Area Employer. SALARY: $50,000-$58,000 per annum, depending on experience. Compensation package includes bonuses, stock options, and other benefits. 40 hours per week, flex time. EOE

Consultant/System Analyst: Analyze, design, dev., migrate & performance tune applications in client/server environment. Perform database admin., use Sybase, CASE tools, 4GLs on multiple platforms (Pyramid, HP9000, IBM PCs, DEC VAX). Requires B.S. or equiv. in CS, EE, Math, or Info Sys & three years of exp job offered or as Prog/Anal; will accept foreign degree eval. to be US equiv. of Bachelor's degree 3 yrs of exp. must involve: Sybase SQL Server or ORACLE 6.0 or higher version; CASE tools, 4GLs on Pyramid, HP 9000, IBM PCs and DEC VAX; migrating & performance tuning of applications in client/server environment, database admin. & distributed systems design. Sal: $61,000/yr. 40hrs/wk (9:00a.m. - 6:00 p.m.) Place of employment and interview: Chicago, IL. Must have proof of legal authority to work permanently in the U.S. Please send 2 copies of resume to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, Ill 60605. Attention: SHELLIA LINDSEY, Reference #V-IL12672-L. NO CALLS. AN EMPLOYER PAID AD.

Systems Analyst (Tandem), 3 Positions (Portland, OR) Designing, implementing & troubleshooting of Tandem mainframe-based on-line & database systems; encode application programs; write software programs; devise systems testing methodology & serve as high technical resource on all projects to analyst/programmer staff. Technology to be employed will include: COBOL, NONSTOP SQL, TAL & TACL w/in a Tand-em based systems environment. $51,700/yr, 40 hr/wk. BS or equiv + 2 yrs exp in job offd or 2 yrs exp as Analyst/Programmer, prior exp to incl Tandem based applications using COBOL, NONSTOP SQL, TAL, TALC. May req short/long-term reloctn at co. expense to various client sites in US to meet co contract obligtns. Applicant must have legal authority to permanently work in the United States. Send resume to Employment Dept. Attn: Job Order# 5550962, 875 Union St. NE, Rm 201, Salem, OR 97311.

SOFTWARE ENGINEER: (2 positions) 40 hrs./wk., 8am-5pm. $49,000/yr. Carry out the system analysis, system design, coding and testing of computer software application systems on IBM mainframe environment utilizing DB2, CICS and COBOL. Require Bachelor's degree in Computer Science or Electrical Engineering and 4 yrs. expr. in job offered or 4 yrs expr. as Software Consultant and/or Programrner/Analyst. Reqr. work experience in analysis and design of software applications on IBM mainframes utilizing DB2, CICS and COBOL. "Employer paid ad". E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No: 114295.

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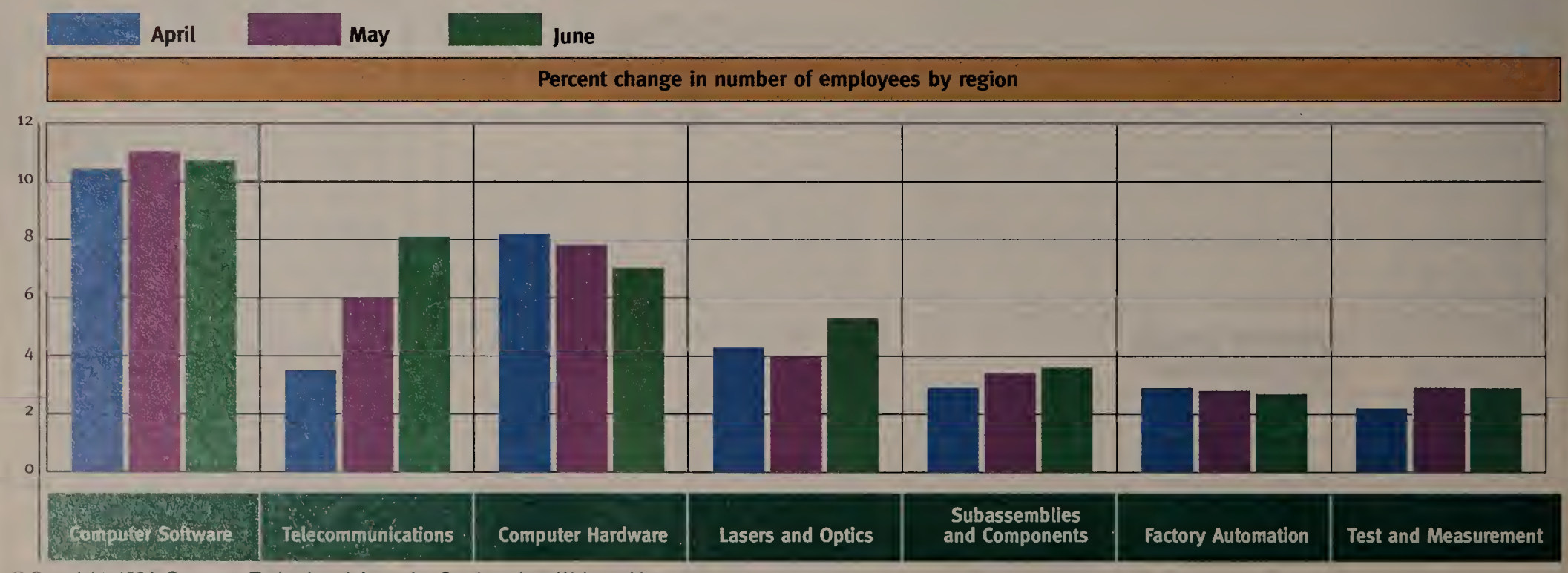

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Marketplace

PDAs gain ground but still have drawbacks. See CW Guide to PDAs, page 72.

Handhelds: What they really cost

Personal digital assistants (PDA) are pricey to begin with, but expenses continue to mount

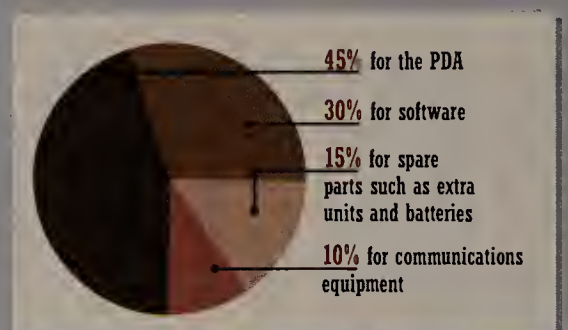
By Lynn Haber

The adage about spending money to make money is proving to be true for many companies adopting PDA strategies. Payback can be as quick as 1½ to 3½ years, but determining cost of ownership at the outset is a challenge.

"Using PDAs is very much a vertical market application, and costs are going to be very specific to the organization that adopts it," says Loretta Santisi, a mobile computing consultant at KPMG Peat Marwick in Radnor, Pa.

Where it goes

To outfit 50 salespeople with PDAs, Michael French, director of mobile computing at Link Resources, breaks out the initial costs as follows:



Ongoing communications costs depend on factors such as frequency and time of day. Organizations can expect to spend a minimum of $50 per month per user for airtime annually.

Training costs depend on application and the number of users. On average, training will total $200 to $300 per user, which consists of half a day of training at deployment and half a day of follow-up.

High costs

Initial PDA costs are steep, but the outlay doesn't stop there. Associated expenditures include communication links, connectivity to remote computers, application, training, airtime and ongoing hardware and software support.

Drill deeper and organizations can spend 50% or less of the initial outlay on hardware, especially for vertical market applications such as field service and sales, says Michael French, director of mobile computing at Link Resources, Inc. in New York.

"For more industrial applications, such as trucking and delivery, the hardware costs shrink even further — to 35% of overall costs," French says. That's because industrial applications require higher costs in other categories, such as communications, training and custom software.

To outfit 50 salespeople with PDAs, French breaks down the initial costs. These include 45% for the PDA, 30% for software, 15% for spare parts such as extra PDA units and batteries and 10% for communications equipment.

Ongoing communication fees depend on things such as frequency and time of day, while cost structures among radio communication providers may be based on airtime and/or per message. Training depends on the application and user.

In fact, on average, training totals $200 to $300 per user, which consists of half a day of training at the outset of PDA deployment and half a day of follow-up training a month later, French says.

Continuous training

Some application training requirements are a one-time thing, yet some experts say training should be ongoing.

"The systems training involves using new tools and learning new software or getting updated training for application enhancements," says Lou Panetta, executive vice president at Fujitsu Personal Systems, Inc. in Santa Clara, Calif.

While training is not the biggest cost associated with PDAs, it can cost a company as much as $5,000 to train a sales organization, according to Panetta.

Despite the availability of off-the-shelf PDA applications, most firms choose to customize their own.

Teri Dahlbeck, manager of systems integration/value-added reseller relations at Apple Computer, Inc. in Cupertino, Calif., advises organizations to consider several things when it comes to PDA application development and costs. They include the process to be automated, the number of data screens, whether the application is stand-alone or client/server and the amount of graphical content.

Up close

Equipping a field group with Psion's 3A PDA includes the following expenses:

Standard retail price for a 2M-byte unit	$6[illegible]
Fax modem, including software	$295
Cable and software for PC connectivity	$1[illegible]
Training for a group of 10 users for five hours	$20 per person per hour
CompuServe account	$[illegible].95 [illegible]
TOTAL*	$1,223 for a single user

** Prices vary depending on volume discounts, training requirements and other miscellaneous costs. They also do not include airtime.*

SOURCE: PSION, INC., CONCORD, MASS.

Citing a couple of examples, Dahlbeck first points to a stand-alone mailroom shipping and receiving application that Bear River Associates, a systems integrator in Berkeley, Calif., developed for Apple's internal use.

Application development, excluding hardware, costs $20,000 for about two months, or 1,600 hours of work. Add to that 12 Apple MessagePads that cost about $695 each.

Dahlbeck compares Apple's application to another Bear River development effort for the California State Transportation Department that costs an estimated $250,000 for a 1,700-hour project. Again, cost excludes hardware.

But whether you buy or build, French says organizations that adopt PDAs are aware of the costs associated with implementing the technology. After looking at 50 corporations using PDAs — assuming the devices work — the company always saves money, French says. "Costs, were never a problem," he says. ■

Haber is a freelance writer in Boston.

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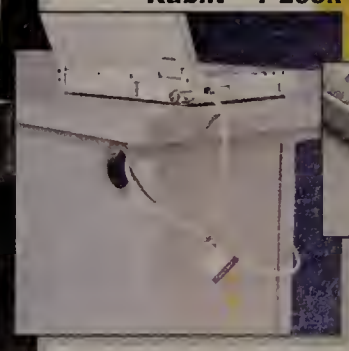

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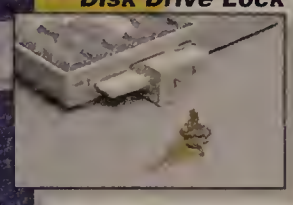

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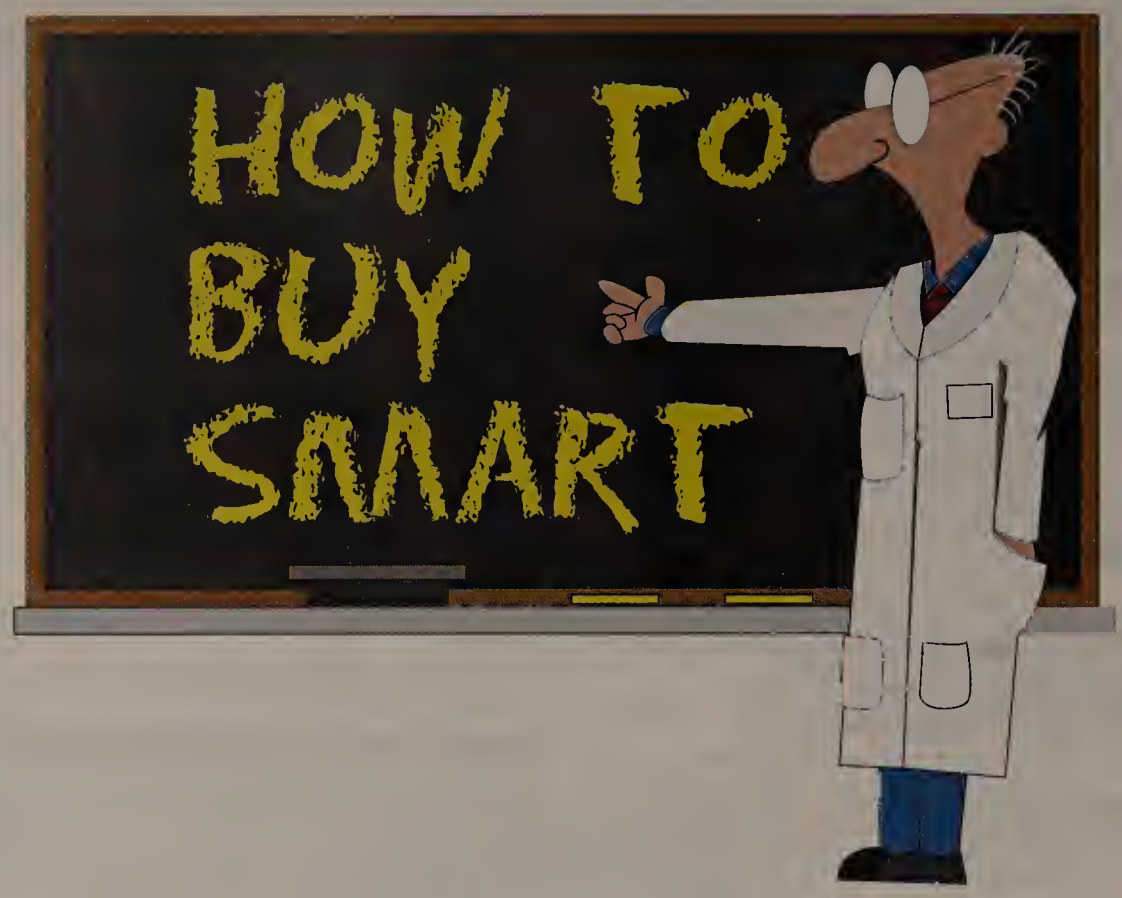

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Gainers

Percent

Group I Software	26.3
Walker Interactive Systems	16.1
Computervision Corp.	15.2
Integrated Silicon Systems(H)	15.2
Bachman Info. Systems	14.0
Racotek Inc.	13.6
Compression Labs Inc.	13.4
4th Dimension	11.8

Dollar

US Robotics	5.13
Integrated Silicon Systems(H)	4.88
Softkey International Inc.(H)	2.69
Group I Software	2.50
Applix Inc.	2.38
Parametric Technology	2.00
Intersolv Inc.	2.00
MCI Commmunications Corp.	1.81

Losers

Percent

ParcPlace Systems Inc.	-41.1
Magic Software Enterprises(H)	-17.2
Penril Data Comm Networks	-16.3
MathSoft	-15.2
Western Digital Corp.	-15.1
Advanced Logic Research	-13.2
TriCord Systems(L)	-12.5
Quantum Corp.(H)	-12.3

Dollar

Texas Instruments	-6.00
ParcPlace Systems Inc.	-5.75
Seagate Technology(H)	-3.88
Quantum Corp.(H)	-3.25
Atmel Corp.(H)	-3.25
BMC Software Inc.(H)	-3.25
Cirrus Logic(H)	-3.13
Western Digital Corp.	-3.13

Industry Almanac

Winning with Windows 95

When Microsoft Corp. releases Windows 95 later this summer, corporate information systems departments will have to work hard to install the operating system. Two markets looking to gain from the travails of loading Windows 95 are asset management software and memory chips.

Asset management software companies should benefit because IS departments will want to find out who needs Windows 95, what users are running now and the specific configuration of each PC. Vendors such as **McAfee Associates, Inc. (MCAF)**, **Symantec Corp. (SYMC)** and **Saber Software Corp. (SABR)** can plan on selling a lot of this software and other desktop utilities.

In fact, Windows 95 is expected to help revive a declining software utilities market, especially for Symantec, according to Andrew Brousseau, an analyst at Cowen & Co. in Boston. "The stock is already reflecting some of that expectation. [Symantec], other than Microsoft, is the biggest direct beneficiary of Windows 95," he said.

While other applications can be run in their 16-bit versions on the 32-bit Windows 95 platform, utilities have to be run in 32-bit mode along with the operating system. Because of this, users will have to upgrade their applications when they install Windows 95, Brousseau said.

Memory is a slightly different story. Users will generally need more memory to handle the Windows 95 load and the applications that go with it. This additional memory will come from dynamic RAM vendors such as **Texas Instruments, Inc. (TXS)**. But Jeffrey Pittsburg, an analyst at Goldis-Pittsburg Institutional Services in Garden City, N.Y., said memory upgrading has been an ongoing process. "A lot of people have upgraded memory capacity already in anticipation of Windows 95," he said. But if supplies get tighter than they are now, the very existence of Windows 95 could push shares up. "If a shortage occurs, then TI could benefit," Pittsburg said.

— Tim Ouellette and Stewart Deck

An assist to asset management

Windows 95 should help a stock such as Symantec's, especially after lean earnings last year

Fiscal year (Ends March 30)	Earnings per share	Revenue
1994	-35 cents	$328M
1995	96 cents	$334M
1996*	$1.20	$385M

*Projected

Source: Alex. Brown & Sons, Inc., Baltimore, Md.

Exch	52-Week Range			June 30 3 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**OFF 0.92%**
OTC	69.75	22.00	3 COM Corp. (H)	67.38	0.25	0.4
NYS	47.25	38.00	AMERITECH Corp. (H)	45.00	-1.13	-2.4
NYS	55.88	47.25	AT&T	53.25	0.13	0.2
OTC	52.00	6.63	Ascend Communications (H)	49.25	-2.50	-4.8
OTC	19.75	11.88	8anyan Systems Inc.	13.63	-0.38	-2.7
OTC	41.88	18.63	8ay Networks Inc. (H)	41.38	0.63	1.5
NYS	58.88	48.38	Bell Atlantic Corp. (H)	56.75	-1.63	-2.8
NYS	64.50	50.50	8ellsouth Corp. (H)	63.50	0.00	0.0
NYS	30.00	10.00	8olt, 8eranek & Newman	27.13	-0.88	-3.1
OTC	19.75	9.00	Brooktrout Technology	14.50	-1.50	-9.4
NYS	56.50	37.38	Cabletron Systems	53.13	-0.50	-0.9
OTC	22.25	10.00	Centigram Communications	14.25	-0.88	-5.8
OTC	50.50	20.00	Chipcom Corp.	24.63	-1.50	-5.7
OTC	52.63	18.75	Cisco Systems Inc. (H)	50.88	-0.38	-0.7
OTC	13.00	6.13	Compression Labs Inc.	9.50	1.13	13.4
OTC	11.88	5.13	Computer Network Tech. (H)	10.38	-1.25	-10.8
OTC	14.50	7.50	CrossComm	11.63	-0.36	-3.0
OTC	4.38	2.13	Data Switch Corp.	4.28	-0.06	-1.4
OTC	48.00	18.75	DSC Communications (H)	46.75	0.50	1.1
OTC	41.75	13.00	FORE Systems Inc.	30.75	-2.00	-6.1
NYS	35.88	9.25	General Datacomm Inds.	12.38	-0.88	-6.6
NYS	34.88	29.50	GTE Corp.	34.00	0.38	1.1
NYS	119.50	77.00	ITT Corp. (H)	117.75	1.13	1.0
OTC	25.88	17.25	MCI Commmunications Corp.	22.00	1.81	9.0
OTC	15.75	5.50	MICOM Communications Corp.	6.63	-0.13	-1.9
OTC	16.88	5.88	Microcom Inc. (H)	15.38	-1.25	-7.5
OTC	10.50	4.00	Netrix Corp.	8.00	0.75	10.3
OTC	9.88	3.25	Network Computing Devices (H)	8.63	-0.63	-6.8
NYS	27.88	8.63	Network Equipment Tech.	23.50	-0.38	-1.6
OTC	30.63	14.25	Network General	27.38	0.63	2.3
NYS	43.75	26.50	Newbridge Networks Corp.	35.38	-0.88	-2.4
NYS	41.00	28.00	Northern Telecom Ltd.	36.38	-2.00	-5.2
OTC	23.25	13.38	Novell Inc.	20.00	-0.25	-1.2
NYS	43.13	35.63	Nynex Corp.	40.13	-2.00	-4.7
OTC	29.50	15.50	Octel Communications Corp.	29.50	1.63	5.8
OTC	28.00	6.38	Optical Data Systems Inc. (H)	26.00	-1.00	-3.7
OTC	6.00	2.13	Penril Data Comm Networks	4.50	-0.88	-16.3
OTC	50.13	11.75	Picturetel Corp.	48.50	0.50	1.0
OTC	8.13	2.13	Proteon Inc.	6.13	0.50	8.9
OTC	7.25	2.75	Racotek Inc.	6.25	0.75	13.6
OTC	6.75	3.50	Retix	3.98	0.23	6.3
NYS	24.88	16.31	Scientific Atlanta Inc.	22.00	-0.25	-1.1
NYS	47.88	39.25	Southwestern Bell Corp. (H)	47.38	0.25	0.5
NYS	40.13	25.88	Sprint Corp.	33.63	-0.88	-2.5
OTC	31.63	12.50	Standard Microsystems Corp.	15.25	0.25	1.7
OTC	50.25	10.25	Stratacom Inc.	48.50	-1.63	-3.2
OTC	8.13	3.88	Telebit Corp.	4.00	-0.13	-3.0
OTC	113.75	25.00	US Robotics	111.88	5.13	4.8
NYS	43.13	34.63	US West Inc.	41.75	0.13	0.3
OTC	23.50	10.25	Xircom	10.25	-0.63	-5.7
OTC	29.00	8.00	Xylogics Inc.	27.75	0.75	2.8
PCs and Workstations						**OFF 2.49%**
OTC	6.88	3.50	Advanced Logic Research	5.75	-0.88	-13.2
OTC	50.94	25.50	Apple Computer Inc.	46.81	-1.19	-2.5
OTC	19.25	10.38	AST Research Inc.	16.38	-1.25	-7.1
NYS	45.50	29.50	Compaq Computer Corp.	45.50	0.63	1.4
OTC	61.75	24.88	Dell Computer Corp. (H)	60.50	0.75	1.3
OTC	25.25	10.75	Gateway 2000 Inc.	23.13	-0.63	-2.6
NYS	77.38	35.94	Hewlett Packard Co. (H)	74.75	-1.63	-2.1
OTC	20.13	2.50	Micron International Inc. (H)	19.00	0.88	4.8
NYS	42.00	21.25	Silicon Graphics	40.13	-1.13	-2.7
OTC	51.38	19.25	Sun Microsystems Inc. (H)	49.00	-1.38	-2.7
NYS	53.13	33.38	Tandy Corp. (H)	51.50	-1.00	-1.9
Large Systems						**OFF 2.31%**
ASE	13.63	5.25	Amdahl Corp.	11.13	-0.50	-4.3
NYS	8.88	3.63	Convex Computer	4.38	-0.25	-5.4
OTC	0.22	0.16	Cray Computer (L)	0.16	0.00	0.0
NYS	26.00	14.63	Cray Research Inc.	24.38	-0.88	-3.5
NYS	12.00	6.75	Data General Corp.	9.50	-0.75	-7.3
NYS	49.50	18.38	Digital Equipment Corp.	40.88	-0.50	-1.2
OTC	5.56	1.06	Encore Computer Corp.	1.66	0.09	6.0
OTC	18.50	6.50	Harris Computer Systems Cor	13.25	-0.75	-5.4
NYS	99.38	54.50	IBM (H)	97.38	-1.63	-1.6
OTC	7.88	3.00	Meridian Data Inc.	5.50	0.50	10.0
OTC	12.25	4.25	NetFrame	5.38	0.06	1.2
OTC	21.25	11.75	Sequent Computer Sys.	18.00	-0.75	-4.0
OTC	5.88	3.13	Sequoia Systems Inc.	4.06	-0.13	-3.0
NYS	39.88	25.75	Stratus Computer Inc.	31.13	-0.50	-1.6
NYS	19.75	11.25	Tandem Computers Inc.	16.13	-0.75	-4.4
OTC	7.63	3.50	TriCord Systems (L)	3.50	-0.50	-12.5
NYS	12.13	8.25	Unisys Corp.	10.88	-0.25	-2.2
Software						**OFF 0.41%**
OTC	66.50	27.00	Adobe Systems Inc. (H)	58.75	-2.25	-3.7
OTC	5.88	2.50	American Software Inc.	5.13	0.50	10.8
OTC	30.75	9.50	Applix Inc.	25.25	2.38	10.4
OTC	44.50	23.25	Autodesk Inc. (H)	43.00	-1.25	-2.8
OTC	7.38	1.75	8achman Info. Systems	7.13	0.88	14.0
OTC	32.75	22.00	8GS Systems Inc. (H)	32.75	1.25	4.0
OTC	81.00	40.25	BMC Software Inc. (H)	76.75	-3.25	-4.1
OTC	31.25	16.50	Boole & 8abbage	30.13	0.13	0.4
OTC	14.38	6.00	8orland Int'l Inc.	13.00	0.13	1.0
OTC	11.75	5.75	8rock Control Systems Inc.	8.63	0.25	3.0
OTC	3.75	1.78	CE Software	2.88	0.25	9.5
ASE	20.00	7.75	Cheyenne Software Inc. (H)	18.75	-1.13	-5.7
OTC	31.25	9.75	Cognos Inc. (H)	29.25	-0.50	-1.7
NYS	73.63	37.50	Computer Associates	68.00	-2.13	-3.0
NYS	6.63	2.50	Computervision Corp.	6.63	0.88	15.2
OTC	49.25	21.88	Compuware Corp.	32.75	-1.00	-3.0
OTC	20.50	9.00	Comshare Inc.	20.50	0.75	3.8
OTC	18.25	10.13	Corel Corp.	17.19	0.19	1.1
OTC	16.25	7.25	Dataware Technologies Inc.	13.25	-0.48	-3.5
OTC	4.88	1.88	Easel Corp.	3.94	0.00	0.0
OTC	40.50	17.25	Filenet Corp. (H)	38.75	-1.13	-2.8
OTC	8.75	3.00	4th Dimension	5.03	0.53	11.8
OTC	31.75	8.50	Frame Technology (H)	29.06	-1.00	-3.3
OTC	35.50	11.50	FTP Software Inc.	30.00	-0.13	-0.4
OTC	12.00	7.25	Group I Software	12.00	2.50	26.3
OTC	14.50	6.75	Gupta	9.63	-0.50	-4.9
OTC	11.75	4.63	Hogan Systems Inc.	10.38	-0.25	-2.4
OTC	49.75	21.75	Hyperion Software Corp.	43.25	-0.75	-1.7
OTC	18.63	11.25	Information Resources	14.00	1.06	8.2
OTC	26.50	7.81	Informix Corp. (H)	26.50	0.44	1.7
OTC	14.38	7.38	Intergraph Corp.	11.38	-1.25	-9.9
OTC	8.00	2.50	Interleaf Inc. (H)	7.38	-0.25	-3.3
OTC	23.13	8.63	Intersolv Inc.	23.13	2.00	9.5
OTC	86.25	33.00	Intuit Inc.	73.75	-1.88	-2.5
OTC	47.00	19.00	Legent Corp.	44.13	1.00	2.3
OTC	64.13	25.00	Lotus Development	63.88	0.13	0.2
OTC	11.38	3.63	Magic Software Enterprises (H)	9.00	-1.88	-17.2
OTC	14.75	6.75	Manugistics Group Inc.	14.25	0.13	0.9
OTC	40.00	14.75	MapInfo Corp.	34.88	-1.88	-5.1
OTC	6.50	1.44	MathSoft	4.88	-0.88	-15.2
OTC	35.25	6.75	McAfee Associates	30.25	-1.63	-5.1
OTC	18.50	9.38	Mentor Graphics	17.31	-0.56	-3.1
OTC	16.53	10.75	Micro Focus	12.00	-0.25	-2.0
OTC	9.25	4.63	Micrografx Inc. (H)	8.13	-0.63	-7.1
OTC	92.38	46.88	Microsoft Corp.	90.56	-0.94	-1.0
OTC	22.50	5.63	NetManage Inc.	17.25	-0.25	-1.4
OTC	40.50	23.66	Oracle Corp. (H)	39.13	-0.50	-1.3
OTC	50.50	21.50	Parametric Technology	50.00	2.00	4.2
OTC	24.25	8.25	ParcPlace Systems Inc.	8.25	-5.75	-41.1
OTC	59.50	14.88	Peoplesoft	54.25	-2.25	-4.0
OTC	11.13	4.38	Phoenix Technologies (H)	10.50	-0.38	-3.4
OTC	16.88	5.50	Platinum Software (H)	14.88	-0.50	-3.3
OTC	25.25	12.50	Platinum Technology	18.13	-0.25	-1.4
OTC	59.50	28.00	Progress Software Corp.	52.50	-1.00	-1.9
OTC	13.00	1.88	Quarterdeck Corp. (H)	11.88	0.25	2.2
OTC	25.13	9.50	Rainbow Technologies Inc.	22.00	-2.63	-10.7
OTC	7.13	2.00	Rasterops (H)	5.63	-0.75	-11.8
OTC	6.13	2.88	Ross Systems	5.25	0.38	7.7
OTC	12.00	0.50	Sapiens Intl. Corp. N.V.	3.00	-0.31	-9.4
OTC	32.13	11.50	Softkey International Inc. (H)	32.00	2.69	9.2
OTC	6.25	2.88	Software Publishing Corp.	3.50	0.00	0.0
OTC	12.50	5.25	State of the Art	9.63	-0.63	-6.1
NYS	39.63	25.00	Sterling Software Inc.	38.50	0.50	1.3
OTC	15.00	3.63	Struct. Dynamics Research	13.00	0.88	7.2
OTC	55.00	19.88	Sybase Inc.	29.25	0.38	1.3
OTC	30.00	10.50	Symantec Corp.	28.56	0.06	0.2
OTC	62.25	34.75	SynOpsys (H)	62.25	0.75	1.2
OTC	30.00	10.63	System Software Assoc.	20.00	-0.81	-3.9
OTC	7.75	3.25	Trinzic Corp.	5.88	0.00	0.0
OTC	24.00	7.88	ViewLogic Systems	12.63	-0.88	-6.5
OTC	22.00	10.75	VMark Software Inc.	17.75	1.50	9.2
OTC	10.75	4.63	Walker Interactive Systems	6.09	0.84	16.1
OTC	55.50	15.00	Wall Data Inc.	15.50	-0.50	-3.1
OTC	18.25	9.13	Wang Laboratories Inc.	16.56	-0.06	-0.4
Semiconductors						**OFF 1.84%**
NYS	39.25	22.25	Advanced Micro Devices (H)	36.50	-1.50	-3.9
NYS	35.38	16.66	Analog Devices Inc. (H)	33.75	-1.25	-3.6
OTC	58.81	21.88	Atmel Corp. (H)	55.50	-3.25	-5.5
OTC	14.88	3.63	Chips and Technologies	13.13	-0.13	-0.9
OTC	67.63	21.00	Cirrus Logic (H)	63.75	-3.13	-4.7
NYS	43.25	15.00	Cypress Semiconductor Corp.	41.38	-0.38	-0.9
NYS	22.50	13.38	Dallas Semiconductor (H)	20.38	0.50	2.5
OTC	37.00	17.63	Integrated Silicon Systems (H)	37.00	4.88	15.2
OTC	66.38	28.06	Intel Corp. (H)	64.63	-1.38	-2.1
NYS	42.63	11.81	LSI Logic Corp. (H)	40.13	-2.00	-4.7
OTC	37.13	15.50	Lattice Semiconductor	34.63	-1.06	-3.0
NYS	59.25	15.25	Micron Technology	55.38	-2.75	-4.7
NYS	67.75	43.38	Motorola Inc. (H)	67.75	1.13	1.7
NYS	29.25	14.38	National Semiconductor	27.88	-0.50	-1.8
OTC	33.31	8.00	Sierra Semiconductor (H)	33.31	0.31	0.9
NYS	144.00	63.38	Texas Instruments	136.00	-6.00	-4.2
OTC	31.38	10.25	VLSI Technology	30.00	0.25	0.8
OTC	5.25	1.78	Weitek	4.38	-0.13	-2.8
ASE	21.75	12.75	Western Digital Corp.	17.63	-3.13	-15.1
OTC	101.00	29.00	Xilinx (H)	96.50	-1.75	-1.8
OTC	37.25	37.25	Zilog Inc.	37.25	0.00	0.0
Peripherals and Subsystems						**OFF 2.73%**
OTC	25.88	14.38	American Power Conversion (H)	22.75	-1.88	-7.6
OTC	39.88	16.25	Adaptec Inc. (H)	37.13	-0.75	-2.0
OTC	27.25	14.75	8anctec Inc.	15.75	0.25	1.6
OTC	11.00	3.38	Cambex Corp. (H)	11.00	0.63	6.0
ASE	4.75	1.38	Cognitronics Corp.	3.25	-0.38	-10.3
NYS	14.25	9.00	Conner Peripherals	12.25	0.13	1.0
OTC	24.00	7.38	Creative Technologies Inc.	9.50	0.00	0.0
OTC	13.13	3.50	Data Race Inc.	10.63	-0.75	-6.6
ASE	7.63	4.25	Dataram Corp.	5.25	-0.38	-6.7
NYS	25.88	12.75	EMC Corp.	24.63	-0.75	-3.0
OTC	24.38	6.50	Emulex Corp. (H)	24.38	0.75	3.2
OTC	17.75	11.25	Evans & Sutherland	16.13	-0.25	-1.5
OTC	24.00	11.75	Exabyte	14.13	-0.38	-2.6
OTC	8.63	1.88	Intelligent Info. Systems	3.38	-0.13	-3.6
OTC	26.13	1.78	Iomega Corp.	22.38	0.75	3.5
OTC	6.75	2.00	IPL Systems Inc.	6.25	0.00	0.0
OTC	54.63	18.50	Komag Inc. (H)	52.88	-0.38	-0.7
OTC	7.25	2.63	Maxtor Corp. (H)	6.25	-0.38	-5.7
OTC	11.50	4.00	Micropolis Corp.	5.25	-0.44	-7.7
OTC	16.75	8.75	Pinnacle Micro Inc.	11.00	0.00	0.0
OTC	28.75	5.81	Printronix Inc.	26.75	-0.50	-1.8
NYS	10.75	5.13	QMS Inc.	5.13	-0.13	-2.4
OTC	26.63	12.75	Quantum Corp. (H)	23.25	-3.25	-12.3
OTC	15.00	7.38	Radius Inc.	11.13	-0.50	-4.3
NYS	9.63	6.38	Recognition International	9.00	0.25	2.9
OTC	7.00	3.63	Rexon Inc.	4.63	-0.38	-7.5
OTC	43.63	19.75	Seagate Technology (H)	39.50	-3.88	-8.9
NYS	39.13	17.88	Storage Technology	24.75	-1.88	-7.0
NYS	49.63	27.63	Tektronix Inc. (H)	49.63	0.88	1.8
NYS	125.88	90.63	Xerox Corp.	116.75	0.38	0.3
Services						**UP 0.04%**
OTC	26.25	14.31	American Mgmt. Systems (H)	24.75	0.13	0.5
NYS	3.38	0.56	Anacomp Inc.	0.81	-0.06	-7.1
OTC	27.75	14.50	Analysts Int'l	25.88	0.00	0.0
NYS	66.00	50.75	Auto Data Processing	63.13	-0.88	-1.4
OTC	36.25	14.00	Cambridge Tech. Partners	33.00	0.25	0.8
NYS	37.63	23.50	Ceridian Corp. (H)	36.88	0.00	0.0
NYS	30.88	18.13	Comdisco Inc.	30.38	0.00	0.0
OTC	16.25	5.50	Computer Horizons	16.00	0.50	3.2
NYS	55.75	39.75	Computer Sciences (H)	55.75	1.25	2.3
NYS	13.75	7.50	Computer Task Group (H)	13.75	0.63	4.8
NYS	33.63	6.75	CompUSA Inc.	32.25	0.38	1.2
OTC	10.75	5.38	Control Data Systems Inc.	8.88	-0.63	-6.6
OTC	13.25	6.13	Egghead Discount Software	13.00	-0.13	-1.0
NYS	45.25	33.00	General Motors E (EDS) (H)	44.13	-0.63	-1.4
OTC	14.25	6.88	Inacom Corp.	12.88	-0.38	-2.8
OTC	18.50	7.50	Intelligent Electronics	13.63	0.00	0.0
OTC	11.25	3.88	Merisel	7.50	0.38	5.3
OTC	18.00	8.50	Microage Inc.	14.19	0.06	0.4
OTC	38.00	19.00	Paychex	37.00	-0.50	-1.3
NYS	51.63	32.25	Policy Management Sys.	46.25	-2.25	-4.6
NYS	30.88	22.25	Reynolds and Reynolds	29.50	-0.38	-1.3
OTC	22.75	16.75	SEI Corp. (H)	22.50	0.88	4.0
OTC	41.50	22.75	Shared Medical Systems (H)	40.00	0.69	1.7
OTC	8.00	4.00	SHL Systemhouse	6.88	-0.56	-7.6
OTC	21.50	11.50	Software Spectrum Inc.	20.88	1.63	8.4
OTC	53.50	32.75	Sungard Data Systems	52.25	1.75	3.5

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Windows 95

CONTINUED FROM COVER 1

that delivery is on track for Aug. 24.

But what really has several major vendors in a sweat is an unwillingness among corporate customers to toe the Microsoft party line, vendors and users said. In fact, a majority of corporate users will probably wait until well into next year to buy Windows 95, according to at least 20 analysts, vendors and users contacted by *Computerworld* during the past two weeks (see box below).

The reason: It will take that long to convince corporate users that Windows 95 is stable. Al-

"At this point we believe that [the migration to Windows 95] will happen. [But] it is probably something we will be ready for only by the second half of next year."

■ *William Kriner*
Departmental computerist & network coordinator
US West Communications, Seattle

"A potential delay again doesn't bring on the warm fuzzies. One of the reasons why we will wait is because of this perception that it is continually delayed."

■ *Fred Deboer*
Director, network services
Advanced Technology Laboratories, Bothell, Wash.

so, most companies are simply not ready to meet the training, support and other management requirements needed to make the migration in the short term, said observers such as Nathan Nuttal, an analyst at BIS Strategic Decisions in Norwell, Mass.

"There is going to be strong support for Windows 3.1 in corporate accounts," Nuttal said.

Dual licensing

Microsoft last week said that while it expects corporate response to Windows 95 to be strong, it was going ahead with dual installation licenses mainly to allay any concerns about the availability of Windows 3.1.

In fact, most vendors feel forced to come up with separate and potentially costlier Windows 95 migration strategies for the corporate market. While most consumer products will have only Windows 95 installed, on the corporate side, vendors will have to support at least two operating systems.

talkback@cw.com

What are your migration plans for Windows 95? Is it important that OEMs continue to bundle Windows 3.1, NT or Windows for Workgroups? Sound off to us at talkback@cw.com. Please include your full name. We'll publish a sample of reader opinions in an upcoming issue.

"Many of our customers are coming back to us and telling us, 'Don't force us [to migrate to Windows 95 yet],'" said Andrew Watson, director of desktop marketing at Compaq Computer Corp. in Houston.

"We need to get people on a stable release. At this point, all we are going to be doing is evaluating," said Marshall Fernholz, network control manager at the American Medical Association in Chicago. He said he does not expect corporatewide migration until at least late 1996 and possibly even 1997.

Users also cautioned that any attempt to immediately dilute support for Windows 3.1 or Windows for Workgroups will backfire.

"If Microsoft tries to force the [new] operating system on corporate users, they'll lose user loyalty pretty fast," said Douglas Murphy, director of MIS at Comcast Corp., one of the country's top cable operators in Philadelphia. Like other companies, Comcast will not migrate until next year at the earliest.

Until then, "I would like to see options" in terms of the operating system that hardware vendors offer, Murphy said.

How they're handling it

Such reactions are forcing several hardware vendors to consider different options, such as the following:

- Loading both Windows 3.1 and Windows 95 on a system's hard disk. A customer chooses one and automatically strips the other. Compaq has already said it will do this. Others will follow.
- Preinstalling all systems with Windows 95 but offering Windows 3.1, Windows for Workgroups or even Windows NT to users who ask for it. AT&T Global Information Solutions is one vendor that has said it will take this tack.
- Offering coupons at the time of purchase of non-Windows 95 systems that will entitle users to a free upgrade when they are ready to move to Windows 95.

Meanwhile, however hotly denied by Microsoft, persistent reports of shipping delays have several major vendors nervously eyeing their inventory of consumer-oriented products. Vendors will have to clear these systems as fast as possible to make way for largely Windows 95 systems in time for the August announcement, according to sources at two major resellers.

Delta ejects

CONTINUED FROM COVER 1

about the decision.

"Delta and Sybase have always had some areas that each side thought the other could do a better job at," Peterschmidt said. He declined to elaborate "until ... management-level contact from Delta occurs."

IS exec takes off

John King, Delta's vice president of information technologies, resigned from the airline last week to start a consulting firm. The parting was amicable, a Delta spokesman said last week. King could not be reached for comment.

According to Boone, Delta is running Informix and Oracle through a series of lofty hoops and expects to decide on a new database standard by August.

To date, Sybase has sold Delta more than $3 million worth of software and services, Peterschmidt said.

Though Sybase initially met Delta's expectations, the vendor has fallen down on the job, Boone said.

For example, technical support "diminished greatly as they grew," he said. Delta had to wait several hours, sometimes days, for answers to technical questions. "In this business, you can't have that," he said.

But Peterschmidt maintained that mission-critical support pleas "get escalated through executive ranks, [and] there's never been anything on my desk [from] Delta."

Delta's decision surprised Linda Morison, vice president of the International Sybase User Group.

"When you have a big, big company like that changing direction, that's not a good thing for Sybase," she said. She noted that System 10 has been criticized recently for not scaling well beyond four to six processors.

But Morison emphasized that she knows of no other large Sybase customers that plan to abandon the database.

"We are aware of the limitations of System 10 and equally aware that Sybase is addressing them with System 11," she said.

IS alliance flies

TransQuest is a joint venture between Delta Air Lines and AT&T GIS that was formed to manage and reengineer Delta's information systems.

Along with managing Delta's worldwide computer operations, TransQuest hopes to become a commercial software maker. This means that regardless of which database Delta chooses to replace Sybase as its corporate standard, products that TransQuest sells to other transportation firms will be database-independent, company officials said.

TransQuest CEO Bill Below *balances Delta's IS choices with need to keep TransQuest database-neutral*

Meanwhile, life for Delta's IS workers has changed in the year since TransQuest was born.

IS salaries are roughly 20% higher, partly because workers no longer have "free" air miles figured into their pay, a TransQuest spokesman said. Further, TransQuest spends $6,000 per employee on technology training, compared with few formal skills improvement plans under Delta.

—Kim S. Nash

Wireless protocol rolls out in several markets

10-plus cities will receive McCaw's CDPD service

By Mindy Blodgett

McCaw Cellular Communications, Inc. looks poised to deliver on some of the many promises made about Cellular Digital Packet Data (CDPD).

Officials said the company will announce commercial availability of the CDPD protocol in several markets this week. CDPD, touted as a relatively inexpensive way to transmit data over cellular networks, has so far failed to live up to expectations.

Roberta Wiggins, an analyst at The Yankee Group in Boston, said the slow deployment of CDPD has been a problem.

"I think the supporters of CDPD were naive about how quickly they could get the technology out there," Wiggins said. "And the other big problem has been the lack of customers. They just haven't been there."

McCaw officials promise that 75% of their voice coverage area will have CDPD service by year's end.

McCaw will also announce new customer agreements and distribution relationships in several cities, according to Jeff Damir, director of product marketing and management at the company's wireless data division.

Damir declined to specify which cities would receive service but said, "It is safe to say we have been focusing on the 10 cities we have previously announced, as well as several others."

Those cities include Miami, Dallas, Las Vegas, Seattle, Portland, Ore., Minneapolis, Oklahoma City, Salt Lake City, Fort Lauderdale, Fla., and Tulsa, Okla.

McCaw has also stated it would begin offering commercial service in New York and Pittsburgh this summer.

Failure to protect PC data is a disaster waiting to happen

When the bomb went off in the World Trade Center two years ago, Lawrence Rudnick's office on the 34th floor trembled and the power failed momentarily, but "nobody knew what had happened." People tried to get back to work without anyone realizing the magnitude of the disaster about to befall them — and their systems — Rudnick told an audience at PC Expo in New York recently.

An assistant vice president at Oppenheimer Management Corp., Rudnick is responsible for its bond and equity trading systems. The blast occurred at 12:16 p.m. on Feb. 26, and Rudnick said one lesson he learned was to have disasters strike on Friday with your backup processes already well under way. And if calamity strikes during the lunch hour, with fewer users on line, then so much the better.

His comments, tinged with irony, assured the audience that trusting to luck is no way to prepare for what may befall you. He said his company was saved by the combination of its routine backup processes and his ability to back up the hard drives of more than 100 networked PCs and workstations before he was required to leave the building 2½ hours later.

As the building filled with smoke, the power failed again. This time it did not return. A thin layer of soot was deposited on Oppenheimer's desktop machines, rendering them useless until they could be cleaned weeks later.

Given the chance to get back into his offices for half an hour on Sunday, Rudnick jury-rigged dial-up access to the mainframe systems. He rented PCs and built a 100-seat LAN in nearby vacant office space. Early the following week, he re-established systems at temporary offices with mainframe service from an IBM hot site in Denver. Oppenheimer was back in business.

High price

Had Rudnick been unable to backup data before leaving the building, Oppenheimer would have lost some of its most recent data and may have had a tougher time re-establishing its systems, Rudnick said.

Speakers at several sessions at PC Expo discussed strategies to protect against a major calamity. The varied approaches testify to how much more data is being stored on PCs and network storage devices. Bill Barry, principal at Barry Communications Group in St. Louis, said LAN storage grew by 60% last year, much faster than mainframe storage. And the nature of the data stored on LANs is now closer to the heart of the business.

An hour spent with LAN services out of commission means loss of productivity and business worth between $10,000 and $180,000 at the average Fortune 1,000 company, he said, citing a Gallup Organization survey conducted in January 1994.

Many LANs now have file protection and duplexing or some form of RAID to protect against the loss of data in case of a disk drive failure. These two alternatives are important and guard against many contingencies, Rudnick said, but "disaster recovery is a very different thing."

To protect data on PC systems, IS managers must determine how crucial the LAN application is to the business. "This is a business decision, not a technical decision," and often a department head's answer will be different from an IS manager's, Rudnick said.

One question to ask is, "How much downtime can be tolerated?" The business unit managers must be involved in that decision, Rudnick said.

The value of PC data has improved faster than the measures taken to protect it. Recovery processes on the LAN have progressed beyond the casual, occasional backup at the desktop to automated backups, with redundant storage and server systems guaranteeing high availability. But such measures still assume that a single device or component failure is the threat.

Protecting PC data means thinking in terms of risks to the whole environment, and it requires re-establishing your data elsewhere quickly and easily when that environment is threatened.

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The Meta View

Protecting PC data means thinking in terms of risks to the whole environment, not just failures of disks or servers.

Charles Babcock

Inside Lines

Intel and the Sundance Kids

Efforts to break the Intel stranglehold on PC design are gaining momentum. For nearly a year, IBM, Compaq, Advanced Micro Devices and Cyrix have been working together in a closely guarded, loose consortium called Sundance that is developing an Intel-alternative hardware architecture. According to a source close to the group, first drafts of the new reference architecture will be disclosed at the Comdex/Fall '95 show later this year. It will allow box makers to design and build standard PCs based on non-Intel chips, initially from AMD and Cyrix. Next-generation chips from both these companies will share a common pinout design and support the Open Processor Interrupt Controller standard.

This is definitely not your father's IBM

Maybe this is the new IBM. Four years ago this week, IBM and Apple touched off industry fireworks when they signed their historic pact to work together on the PowerPC initiative. Now IBM has signed a deal to build PowerPC Power Macintosh clones for Radius. IBM will make Radius' 601 and 604 PowerPC-based systems that run MacOS. The systems will carry the Radius label. The move has observers wondering if an IBM brand Macintosh clone is far off.

Yeah, yeah, that's the ticket

The state of California got taken to task in a report issued last week by a special council of Silicon Valley executives. The group, cochaired by Oracle CEO Larry Ellison, was asked by Republican Gov. Pete Wilson last year to figure out how his debtor state can improve its use of computer technology. The report called California's IS accomplishments inadequate, noting, for example, the painful lack of technology in most state agencies. Ellison was then quoted advocating drastic deregulation of telecommunications laws. Quietly omitted was the fact that Oracle's interactive-TV dreams would stand to benefit greatly from such new laws.

Kick it!

Heeding the siren song of the middleware market, IBM chewed over the idea of developing a streamlined version of its CICS for OS/2 transaction monitor software for use purely as a routing engine for connecting LANs into mainframe and midrange systems. But the prospect of subtracting the CICS API from the product provoked more indigestion than inspiration, IBM officials said. Routing between the desktop and the data center "is not enough in its own right" for CICS, according to one official.

No mistaking that calling card

Network General is tired of hearing every network protocol analysis tool referred to as a "sniffer." Company officials said they are preparing to defend the Sniffer brand name so that buyers will know exactly what they are getting. However, users complain that sticker shock lets them know well enough.

C'mon down!

Fifteen Asynchronous Transfer Mode (ATM) switches, Rmon and test equipment manufacturers will this week announce the formation of a group that wants to delineate a standard way to monitor traffic on so-called virtual circuits in ATM networks. That will be done by creating the ATM Circuit Steering Management Information Base. The ATM Monitoring Group (known as Amon) will submit the spec to the 700-member group ATM Forum for approval.

If you want to take a closer look at what is driving Bill Gates nuts, check out this excerpt from a recent Justice Department request to Microsoft for documents. It gives new definition to the broad nature of legal inquiries. "Produce all strategic plans prepared by or for Microsoft by any party and any documents ... concerning predictions as to the future of computers and computer technology, including but not limited to the use of computers as telephone devices, the use of computers as TVs ... or the convergence of computer and communications technology." If you've any predictions you'd like to reveal to Computerworld, *please call our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at mjohnson@cw.com.*

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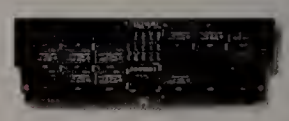

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